

# Pryor Mountain Wild Horse Range/Territory

## *Preliminary* Environmental Assessment

### MT-010-08-24

and

## *Draft* Herd Management Area Plan

June 2008



Billings Field Office



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# **Pryor Mountain Wild Horse Range Draft Herd Management Area Plan and Preliminary Environmental Assessment (EA) Number MT- 010-08-24**

## **1.0 PURPOSE & NEED**

### **1.1 Introduction**

This Environmental Assessment (EA) has been prepared to disclose and analyze the potential environmental consequences of the Pryor Mountain Wild Horse Range (PMWHR) *Draft* Herd Management Area Plan. The EA is a site-specific analysis of impacts that could result with the implementation of the proposed action or alternatives. The EA assists the BLM and Forest Service in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any “significant” impacts could result from the analyzed actions. “Significance” is defined by NEPA and is found in regulation 40 CFR 1508.27.

An EA provides rationale for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of “Finding of No Significant Impact” (FONSI). If the decision maker determines that this project has “significant” impacts following the analysis in the EA, an EIS would be prepared for the project. If not, a Decision Record may be signed for the EA approving the selected alternative, whether the proposed action or another alternative. A Decision Record (DR), including a FONSI statement, documents the reasons why implementation of the selected alternative would not result in “significant” environmental impacts (effects) beyond those already addressed in Billings Resource Area Resource Management Plan (RMP) and subsequent Record of Decision (ROD), dated September, 1984 and Custer National Forest Plan and Record of Decision, dated, 1987.

### **1.2 Need for the Proposed Action**

The Bureau of Land Management (BLM) Billings Field Office in coordination with the Forest Service, Custer National Forest and the National Park Service (NPS) Bighorn Canyon National Recreation Area (BCNRA) have identified through the Pryor Mountain Wild Horse Range Evaluation dated February 2008 that the Criteria for Revision of the current Herd Management Area Plan (HMAP) has been met. It has also been a technical recommendation through the Evaluation to revise the current HMAP to correct management practices that are resulting in non conformance with laws, regulation, and land use plan objectives. The Evaluation also identified deficiencies that could only be corrected through revision of the current plan that would allow managing wild horses in a “thriving natural ecological balance” as well as manage wild horses within the “productive capacity of their habitat” and “prevent the range from deteriorating associated with an over-population of wild horses” a revision of the HMAP needs to occur. Also to ensure conformance with public land laws, regulations, policies, and land use plans wild horses need to be confined within the PMWHR.

### **1.3 Purpose for the Proposed Action**

The purpose of the action is to ensure wild horse management activities are undertaken with the goal of meeting, law, regulation, policy and land use plans. The purpose of the Herd Management Area Plan/Environmental Assessment (HMAP/EA) is to function as an activity level plan under the umbrella of land use plan objectives and goals for the Pryor Mountain Wild Horse Range (PMWHR). The intent of the draft plan is to supersede or incorporate previous direction identified from the 1984 and subsequent 1992 amended HMAP. This plan would be in conformance with all applicable laws, regulations, and policies of each agency involved for management of activities within the PMWHR.

The HMAP/EA relies on the analysis from the Pryor Mountain Wild Horse Range Evaluation, applicable law, and Code of Federal Regulations, policy, case law, and research findings to determine specific objectives for the management of the PMWHR. The plan is intended to have a “lifespan” of five to ten years and to be maintained on an annual basis through the project log (Appendix 5) in order to determine if objectives are being met, management practices are working, and if the management situation has sufficiently changed that a plan revision or amendment is warranted prior to the “life” of the plan.

The plan would re-establish the Appropriate Management Level (AML), as well as develop prescriptions for habitat limitations, identify opportunities for improvement, and emphasize stabilization of ecological conditions. This plan is based upon the analysis from the PMWHR 2007 Evaluation. This plan would determine specific herd structure, population management objectives and other resource objectives. This HMAP would serve as the primary activity plan for the PMWHR. The emphasis of this plan is to stabilize ecological conditions and halt range deterioration.

Overall objectives of the proposed action are to: 1) ensure a thriving natural ecological balance is attained; 2) protect animal health; 3) make progress towards Standards of Rangeland Health while providing for stabilization and improvement of the rangelands and forests within the PMWHR; 4) conduct treatments in a way that minimizes impacts to other resources; and 5) maintain multiple use relationships.

### **1.4 Decisions to be Made**

The BLM, Forest Service and NPS work cooperatively in the long-term management of the PMWHR. Each agency has certain management and decision making authorities related to their respective roles and jurisdictions in the management of the PMWHR. Before describing what decisions would be made as a result of this analysis, the following is a breakdown of each agency’s management and decision-making authorities, as they relate to the PMWHR.

- The BLM has authority for population management, habitat conditions, and monitoring associated with all portions of the PMWHR.
- Each agency has authority for management decisions (i.e. fencing, water developments, prescribed fire and fuels reduction, and seeding) on their portion of the PMWHR.

- The BLM and Forest Service jointly share authority for the BLM/Forest Service fence segment of the North Boundary Fence and re-establishment of AML.

The BLM, in consultation with the Forest Service and NPS, would decide whether or not to revise the 1984/1992 Herd Management Area Plan (HMAP), as amended. Therefore, should the BLM decide to revise the HMAP, that decision would include establishing Appropriate Management Level (AML), use of population management techniques, and, structural and non-structural improvements (i.e. water developments, fencing, and prescribed fire) and what design features and mitigation measures would be used in the implementation of that decision.

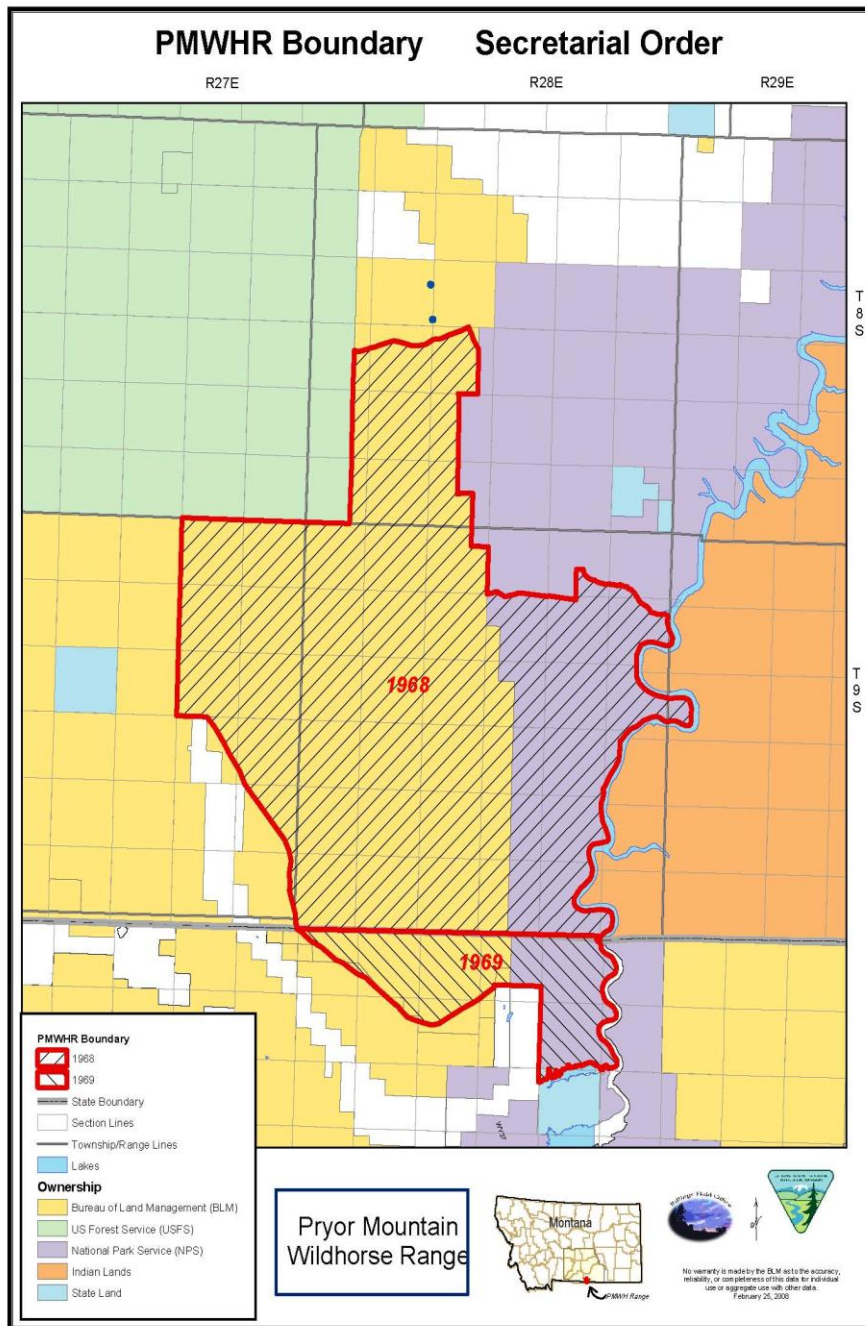
## 1.5 Background/General Setting

The PMWHR is located in the southeastern portion of Carbon County, Montana, and northern Big Horn County, Wyoming. The area is approximately 50 miles south of Billings, Montana, and 10 miles north of Lovell Wyoming. The area is high in diversity and complex in nature. Elevations range from 3850 feet to 8750 feet above sea level. Annual precipitation varies with elevation with six inches of precipitation in the lower elevations to upwards of twenty inches in the alpine high elevation. Plant communities also vary with elevation and precipitation from cold desert shrub to sub-alpine forests and meadows. Soils vary in depth from shallow (less than ten inches) to 20-40 inches deep depending on site locations and position on the landscape. Water is limited as there are five perennial water sources within the PMWHR.

The majority of the PMWHR was originally created by order of the Secretary of the Interior, Stewart L. Udall on September 9, 1968. At the time the PMWHR encompassed 33,600 acres of BLM and NPS lands in Montana. In 1969 another adjustment occurred, adding lands within Wyoming. In December 1971 the Wild Free-Roaming Horse and Burro Act was signed into law. The management and protection of all unclaimed wild horses and burros was delegated to the Secretaries of the Interior and Agriculture. The Bureau of Land Management and Forest Service were charged with administering the Act as outlined in Section 2 of said Act (as the act was at that time). In 1974 and 1975 the range was expanded pursuant to authority contained in the Wild and Free-Roaming Horse and Burro Act. A joint Forest Service and BLM decision was reached in the 1974 *Pryor Mountain Complex Land Use Decision and BLM Pryor Mountain Complex Management Framework Plan* which analyzed **where wild horses were found at the time of the passage of the Act**. This joint assessment was based on public involvement, comprehensive inventories, and recommendations from agency specialists of where horses were “presently found” per the Act. The 1974 joint decision allowed wild horses to be managed within the Lost Water Canyon area (Forest Plan Management Area Q), the Mystic Allotment area, Lower Crooked Creek and Upper Crooked Creek (BLM). Adjustment to the range occurred in 1984 with the temporary inclusion of the Sorenson Extension, (using two five year special use permits) from the Bighorn Canyon National Recreation Area (BCNRA), and closure of the administrative pastures. In 1990 the last adjustment occurred when the Sorenson Extension was not re-authorized by BCNRA. This resulted in the present boundary encompassing more than 38,000 acres of lands.

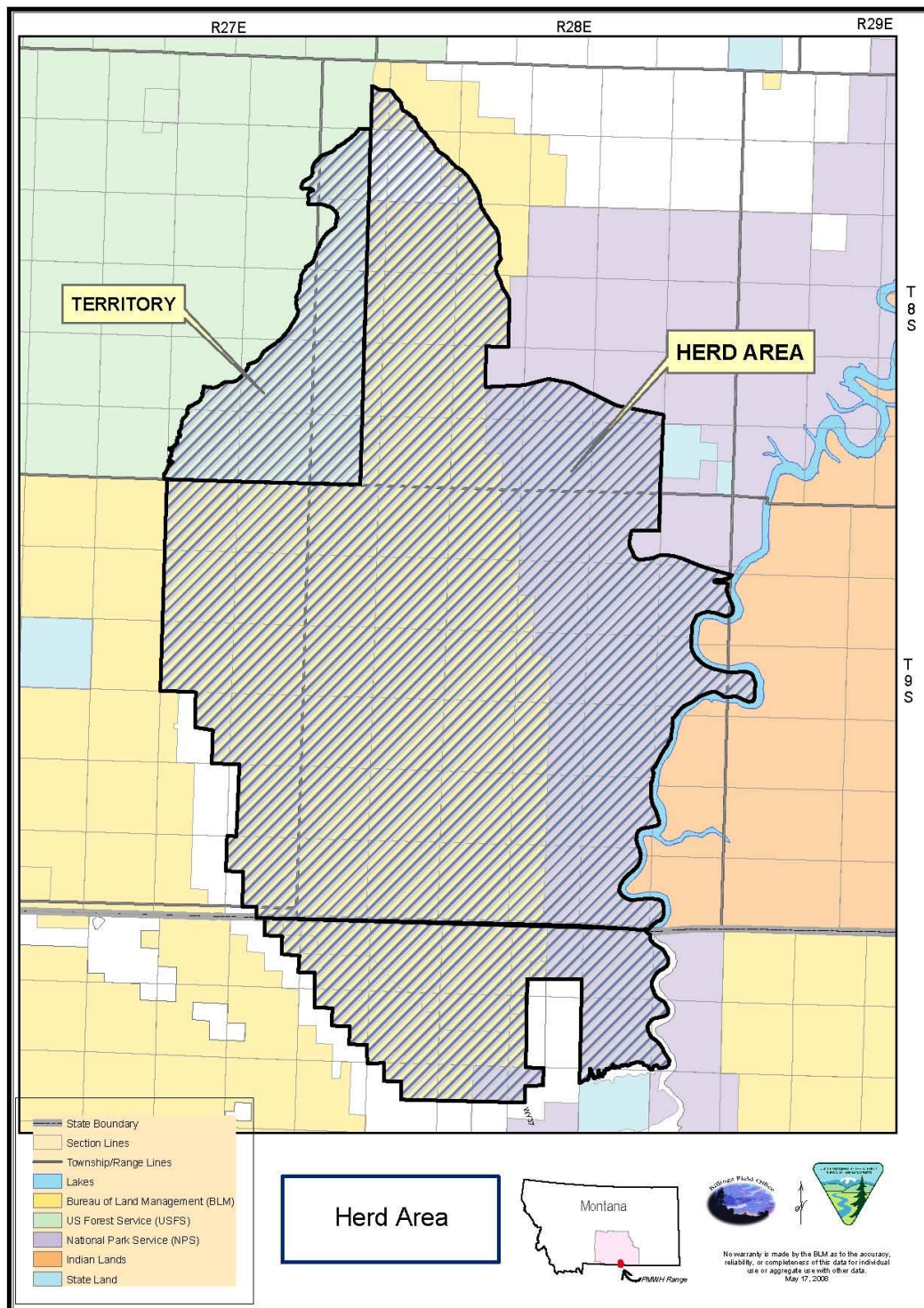


## Map 1 - Secretarial Orders

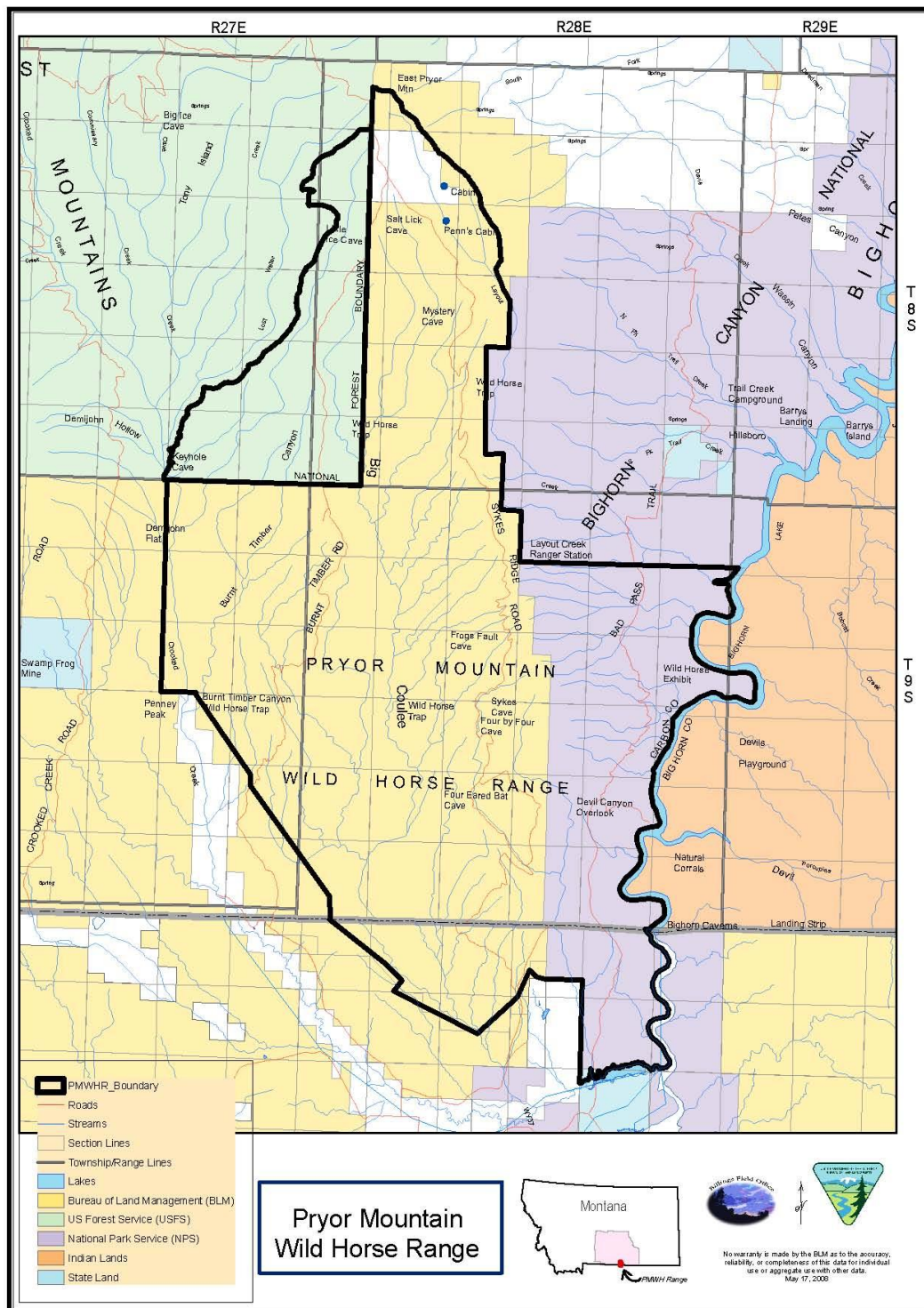




**Map 2 - Herd Area/Territory**



**Map 3 - Pryor Mountain Wild Horse Range Actual Boundary**



The exact origin of the wild horses within the PMWHR is not entirely known. There is much supposition as to their origins. Many claim the horses are descendents of animals the Crow

Indians used who in part got the horses from the Spanish or other tribes in contact with the Spanish. The Crow had horses in the early 1700s and inhabited the Pryor Mountains before European settlement. Others claim the horses have been there forever. Wild horses within the Bighorn Basin were well documented by the early 1900s. Most likely the wild free-roaming horses inhabiting the PMWHR are descendents of numerous founding stock. Genetic tests conducted in 1992 by Dr. Gus Cothran identified the Pryor horses as descendents of New World “Spanish” breeds (saddle type horses) and related to European Iberian breeds. The Pryor horses carry a rare allele variant Qac that is traced back to original New World “Spanish” type horses that were developed from the original Spanish and Portuguese (Iberian) horses that were brought to the Americas.

Generally wild horse use tends to shift with forage availability and elevation accessibility. Wild horses tend to live in family groups or bands. Bands are primarily composed of one dominant stallion with several mares and a “lead” mare depending on the stallion’s capability of maintaining the mares. A band can range in size from one mare and one stallion to 6 or 7 mares and one stallion with their progeny. A bachelor band is made of young males that are not yet mature enough to build a band and defeat rival stallions for mares or steal a mare. These young males tend to be displaced from the family band typically but not exclusively upon reaching breeding age. The typical band is led by one dominant mare that controls the day to day activities, unless the stallion feels threatened and moves the band out of an area. Each band typically has a small home range it likes to occupy with seasonal shifts in roaming patterns. The Pryor horses are no exception to this structure or behavior.

### **Appropriate Management Levels and History**

a. 1984	Appropriate Management Level	121 Wild Horses
b. 1992	Appropriate Management Level	95 Wild Horses
c. Present	Current AML	95 Wild Horses
<b>d. Proposed</b>	<b>Proposed AML Range</b>	<b>90-120 Wild Horses</b>

**Table 1 - Past Inventory Information**

<b>Year</b>	<b>Wild Horse Numbers</b>
1971	155
1972	155
1973	120
1974	130
1975	140
1976	140
1977	145
1978	87
1979	105
1980	127
1981	155
1982	144
1983	147
1984	141

1985	139
1986	155
1987	147
1988	130
1989	122
1990	133
1991	120
1992	115
1993	143
1994	118
1995	146
1996	175
1997	147
1998	158
1999	173
2000	188
2001	160
2002	170
2003	161
2004	142
2005	160
2006	145
2007	159
2008	170

**Table 2 - Past Population Management Actions/Table of gather removals and fertility control application**

<b>Year</b>	<b>Removals</b>	<b>Fertility Control Treated</b>
1971	45	
1972		
1973	35	
1974		
1975	25	
1976		
1977	25	
1978		
1979		
1980	1	
1981	6	
1982	43	
1983	21	
1984	13	
1985	25	
1986	0	

1987	23	
1988	26	
1989	21	
1990	3	
1991	16	
1992	46	
1993	1	
1994	51	
1995	0	
1996	0	
1997	46	
1998	0	
1999	1	
2000	0	
2001	46	6 mares
2002	0	14 mares
2003	7	14 mares
2004	0	4 mares
2005	0	12 mares
2006	22	17 mares
2007	0	27 mares
2008	0	0 mares

## 1.6 Conformances with Land Use Plan(s)

The proposed action described is in conformance with the Resource Management Plan/Environmental Impact Statement and Record of Decision for the Billings Resource Area issued in April, 1983 and September, 1984, respectively. In June 1987, a Record of Decision was issued for the Custer Forest Plan. It outlined management area direction for the Pryor Mountain Wild Horse Territory and reaffirms BLM as the lead administrating agency. These documents guide the management of public lands within the PMWHR

### 1. The Billings Resource Area Record of Decision states in pertinent part:

#### ***WILD HORSE MANAGEMENT***

*This action will balance population levels with the forage available for horses by herd area. The population of a herd area will be held at a level that provides opportunity for improvement of range condition, herd health and viability, wildlife habitat, and watershed condition, or maintain these in good balance."*

#### ***Resource Objectives and Planned Actions***

*"The resource objectives in this action will be to maintain a viable breeding herd which could perpetuate the characteristics of the Pryor Mountain wild horses; maintain 2,775 acres that are currently in good range condition; prevent further deterioration of range sites in less than satisfactory condition and to achieve an upward trend in range*

*condition on those sites. The primary benefit will be a healthier, more viable horse herd."*

*"Under this action the initial stocking level will be 121 adult horses; 46 on Tillet Ridge, 44 on Sykes Ridge and 31 on the Dryhead herd area. These numbers are based on current estimates of grazing capacity for each herd area. These numbers are also dependent on the continuation of current agreements which allow wild horses to graze areas outside the designated wild horse range boundary."*

*The initial target allocation for wild horses will be 121 head (it is estimated that 80 percent of this number would be 2 years old or older). Actual numbers may vary from year to year due to variations in foal crops, natural death loss, forage productivity and other factors including budgetary constraints."*

*"During the short term period (8 years), monitoring studies will be conducted to confirm or modify the initial estimates of grazing capacities and trends in habitat conditions. Data from these studies will be used to modify the initial target allocation, either upward or downward."*

*"During the long term (25 years), the number of wild horses in a herd area will be permitted to increase if monitoring shows that additional forage is available. Ultimately, the Pryor Mountain Wild Horse Range (PMWHR) has the potential to support up to 179 wild horses yearlong. This assumes all areas now grazed by wild horses will continue to be available. However, the projected long-term population increase in this action is considerably less than the potential level of 179 head since no rotational grazing systems will be in effect."*

*"Improved wild horse grazing habits and distribution will be attempted by controlling their access to water sources. When the average utilization on important grasses within the area serviced by water sources reaches 45 percent by weight, access to that water source will be denied. This would stimulate the horses to move to another watered area."*

*To assure that non-public lands remain available for grazing by wild horses, the United States will attempt to acquire 1,467 acres from the State of Montana, and 632 acres of private land.*

*The emphasis in herd management will be to limit the reproduction rate and perpetuate the characteristics of the Pryor Mountain Wild Horses. This will necessitate beginning a selection program to retain only those wild horses with confirmation, color and breeding (genetic) characteristics typical of the Pryor Mountain wild horses."*

*"This action will require altering the current sex ratio so that it is heavier to studs than the current population. This will reduce the foal crop and minimize the need for excessing wild horses."*



*“When it becomes necessary to reduce the number of horses within a herd area, the excess horses will, if possible, be relocated to one of the other herd areas. If this option is not available, the excess horses will be disposed of through the adoption program or other legal processes.”*

*A Wild Horse Herd Management Area Plan (WHHMAP) is being developed jointly between the National Park Service, Forest Service and BLM, with the BLM as the lead agency, and will incorporate the management direction provided by this plan. This WHHMAP will be released in September 1984.*

### ***Proposed Range Improvements***

*This action requires minimal additional man-made improvements or facilities. Five water catchments will be required to improve grazing distribution by bands of horses. About 2 miles of fence will be needed for improving the efficiency of capturing horses. The estimated cost to implement this action is \$50,500. In the short term, the annual excessing of horses will continue, requiring an estimated \$18,000 to \$21,000 annually to gather and excess an average of 30 horses. In the long term, altering the sex ratio will reduce the foal crop, but some level of annual excessing may still be required. Costs in the long-term cannot be estimated because the timing of the sex ratio reversal and its impacts to horse numbers has not been established.*

### ***Rationale***

*“The primary objective will be to maintain a healthy, viable herd that displays the characteristics typical of the Pryor Mountain wild horses. In order to accomplish this, the range must be kept at a condition that will provide both the quantity and quality of forage needed to sustain the herd. The Bureau has an obligation to other agencies as well as private individuals who own land within the horse use areas to ensure that basic soil and vegetative resources are not degraded.”*

*The 1981 Ecological Site Inventory determined what stocking level the range could support in its current condition. This is a target allocation and monitoring studies will be established to determine what, if any, adjustments are needed.”*

*The proposed water catchments are to improve wild horse distribution through the availability of water. The BLM is currently exploring new designs for catchments to improve their efficiency, aesthetics, and lower the initial cost and maintenance costs.*

*Two miles of fencing will be constructed to facilitate the capture of the horses and is designed to reduce the stress horses are subject to during gather operations.*

### ***Monitoring***

*“Management progress will be evaluated to assure the level applied and the decisions made are compatible with multiple use objectives for the PMWHR. Vegetation monitoring will focus on utilization levels, movement toward reaching the stated objective of the Herd Management Area Plan (HMAP) and long term trend (change in condition).”*



*“Studies on the wild horses will include population size, animal distribution, foraging habits and population characteristics. The studies on population characteristics will include sex ratio, age structure, social structure, animal condition and special characteristics identified in the HMAP such as selection of color, a more detailed discussion on monitoring techniques can be found in the HMAP.”*

## **WILDLIFE MANAGEMENT**

*“The Federal Land Policy and Management Act (FLPMA) of 1976 chartered BLM with the responsibility of maintaining or enhancing the fish and wildlife habitats that occur on the public lands.”*

### **Resource Objectives and Planned Actions**

*“The Billings Resource Area operates under a number of general wildlife habitat management objectives which are utilized Bureauwide. Each objective is mandated and/or supported by specific Federal regulation or legislation. The BLM wildlife habitat management program places special emphasis on, but is not limited to the protection, maintenance and enhancement of:*

*Crucial habitats for big game, upland game birds and waterfowl.*

*Crucial habitats for non-game species of special interest and concern to state and other Federal agencies.*

*Wetland and riparian habitats.*

*Existing or potential fisheries habitat*

*Habitat for state or federally listed threatened and/or endangered species.”*

## **TIMBER MANAGEMENT**

### **Resource Objectives and Planned Actions**

*“A total of 9,500 acres of forest land will be protected from cutting, except where needed for other resource value or concern such as watershed, safety or wildlife. The protection area includes the Pryor Mountains WSA’s.....”*

## **OFF-ROAD VEHICLE USE**

### **Resource Objectives and Planned Actions**

*“The BLM will attempt to meet the demand for off-road vehicle (ORV) use on public land, while protecting watershed, visual resources and other conflicts which may occur between ORV users, adjacent landowners and permittees.”*

## **WILD HORSE INTERPRETATION**

### ***Resource Objectives and Planned Actions***

*Interpretation of the Pryor Mountain wild horses and their management will be pursued as a cooperative venture between the BLM; the U.S. Forest Service, and the NPS.....some additional interpretation is possible dependent upon the outcome of the Pryor Mountain Wild Horse Herd management Area Plan.....”*

## **2. The Custer Forest Plan and Record of Decision states in pertinent part:**

### ***Wild Horse Management***

The goal for the Wild Horse Territory (Management Area Q) is to, “provide for improved habitat conditions, including range and watershed, and for a healthy viable wild horse population. “

### ***Management Standards (Management Area Q)***

#### ***Wildlife and Fish***

- a. The Forest Service will coordinate with the BLM, and other Federal/state agencies to maintain or enhance wildlife habitat and population numbers in a manner which is compatible with wild horses and overall habitat conditions.*

#### ***Range***

- a. No grazing of domestic livestock will be permitted in the area.*
- b. The Forest Service will cooperate with the BLM on scheduled monitoring items to determine carrying capacity and/or vegetative conditions and trends. Vegetation and climatological data will be collected to refine carrying capacity estimates and document vegetative condition and trends.*
- c. New range improvements may be constructed provided they do not attract horses into the proposed Lost Water Canyon Wilderness. However, the horse trap on Tillett Ridge and the two enclosures will be retained.*

#### ***Fire Management***

- b. Prescribed Fire*

*Planned ignitions may be used with an approved plan coordinated with the Bureau of Land Management to enhance range conditions for wild horses.*

### **Forest Service**

The 1971 Act, 43 CFR 4700, and 36 CFR 222 do not authorized the agencies to relocate wild horses to other Forest Service or BLM lands that are not territories or head areas pursuant to the 1971 Act. This is validated in Forest Service Policy (FSM 2260.3) which directs management to “Confine wild free-roaming horses and burros to managed Horse and Burro Territories as established in 1971, to the extent possible.”

### **3. Bighorn Canyon National Recreation Area**

The National Park Service manages land in accordance with the 1916 Organic Act which necessitates management which will “*conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.*” The 1969 MOU between the BLM and NPS provides for BLM management of horses, and asserts that if such management effects land use options, then recreational use shall have priority. The National Park Service is deeply concerned about the poor and deteriorating condition of the range. NPS is working to improve range condition, prohibiting grazing by domestic stock, and using an active restoration program which includes the use of prescribed fire.

#### **1.7 Relationship to Statutes, Regulations, or other Plans**

**The action is consistent with the following:**

1971 Wild Free-Roaming Horse and Burro Act as Amended (PL 92-195). This act directs the BLM and Forest Service in the management of wild horses.

1976 Federal Land Management Policy Act (FLPMA)

1978 Federal Rangeland Improvement Act (PRIA)

36 CFR 222

43 CFR 4700

43 CFR 4100

Standards of Rangeland Health

Billings Resource Management Plan and amendments

Custer National Forest and Grassland Plan for Management

#### **1.8 Identification of Issues**

The Pryor Mountain Wild Horse Range (PMWHR) Draft Evaluation was issued for public participation on November 19, 2007. The Pryor Mountain Wild Horse Range Evaluation process did not establish new goals or objectives. The purpose of the evaluation was to measure if current uses were meeting existing decisions and objectives that were established in the Bureau of Land Management Billings Resource Management Plan (1984), Forest Plan (1987), Bighorn Canyon National Recreation Area laws and policies, and the Pryor Mountain Herd Management Area Plan (1984, 1992).

Interested parties were asked to review the document and provide additional relevant data, information, or analysis that could be used to measure objectives. Parties were also asked to provide any technical recommendations for meeting or making progress towards meeting decisions and objectives. Two parties provided data that was incorporated into the Evaluation. Eighty seven parties provided comments and/or technical recommendations for management of the PMWHR. Four parties provided separate interpretations of the analysis for calculating the appropriate management level (AML). All parties who participated were documented and incorporated into the Final Pryor Mountain Wild Horse Range Evaluation in February 2008.

The public comment and involvement of the PMWHR Draft Evaluation was used to help identify issues that relate to the effects of the proposed action. An issue is an unresolved conflict or public concern over a potential effect on a physical, biological, social or economic resource as a result of the proposed action and alternatives to it. An issue is not an activity; rather, the projected effects of the proposed activity create the issue (cause and effect). The analysis team reviews the scoping comments and categorized issues into two groups:

- **Issues studied in detail** – these are issues identified by the analysis team as important and within the scope of the project. These issues influence the analysis, suggest new alternatives, or require additional project design and mitigation features.
- **Issues not studied in detail** – these are issues considered, but were determined by the analysis team to be outside the scope of the project, requests for information, or resolved through existing law, regulation, or policy.

## **ISSUES STUDIED IN DETAIL**

During the course of the evaluation process the following issues were identified and determined by the Responsible Official to be studied in detail and are addressed through the proposed action, alternatives to the proposed action and design criteria. An indicator for measuring each issue is presented and will be discussed in the analysis and used to compare the alternatives.

### **Ecological Condition**

Deteriorating range and forest conditions associated with hands off type management practices has lead to the current situation on the ground (2008 PMWHR Evaluation). The BLM and Forest Service are prohibited from allowing a “deterioration of the range associated with an over-population of wild horses” (PL-92-195). The National Park Service is also mandated to manage sustainable lands. The proposed action and to a lesser extent the No Action Alternative is developed in order to rectify this deficiency and correct management inadequacies.

### **Appropriate Management Level (AML)**

AML is based upon the carrying capacity of the habitat as identified by the Wild and Free Roaming Horse and Burro Act (PL92-195). The BLM and Forest Service authorities allow for AML to only be established based upon the carrying capacity of the land with consideration with preserving multiple-use relationships. The establishment of AML is not intended to be a onetime

determination but rather a fluid process where adjustments are made based upon environmental changes and management needs. The Act mandates to “protect the range from the deterioration associated with overpopulation” (PL 92-195). The Interior Board of Land Appeals 109 IBLA 118 and 119 stated “We interpret the term AML within the context of the statute to mean that optimum number of wild horses which results in a thriving ecological balance and avoids deterioration of the range.” Thus, the Proposed Action and to a lesser extent the No Action alternatives are designed to meet the absolute minimum of preventing deterioration, but not necessarily improvement.

## **Wilderness Study**

Structural improvements in the Proposed Action alternative that would be used to disperse horse use across the PMWHR could affect the characteristics for which the Wilderness Study Area was designated. The BLM is prohibited from taking any actions within or adjacent to Wilderness Study Areas that would impair the wilderness characteristics or prevent an area from potentially being designated Wilderness. Designation or release from WSA status can only be determined by Congress. Project development within WSA’s can only occur after an analysis of non-impairment is conducted. Alternatives were developed in order to describe and conduct analysis on the best alternative for meeting non-impairment.

## **Recreation**

The public views newborn foals, rides ATVs, camps, explores, caves, and hunts in the Pryor’s. These uses create situations of competing interests and controversy. Providing access for recreational activities as well as protecting the land and wild horses from negative impacts associated with increased visitation is a balance in uses that requires management. Development of Alternatives would have an effect on recreational viewing of wild horses as each alternative would have a different distribution pattern of where wild horses are expected to reside. This document does not explicitly address recreation management, rather the impacts of the alternatives as it relates to wild horse management and recreational opportunities.

## **Genetic Viability**

The agencies interpreted this issue to mean a concern for wild horse health. The issue is being addressed in that context.

Minimum viable population (MVP) size is a moving target. Part of the hypothesis behind MVP is that populations aren’t manipulated by human intervention and generally in a scope of 100 years before a population is at risk due to a loss of genetic variation. A minimum effective population size for mammals ( $N_e$ ) is sometimes identified as one third of individuals within a population, but a true  $N_e$  is the total animals actually breeding. Increasing genetic variation is designed within the proposed action to ensure wild horse health. Scribner, Meffe, and Groom in “Principles of Conservation Biology third edition 2006” state “while the loss of genetic diversity is a concern, it is important to recognize that the rate of loss is usually slower than the time frame in which management actions can occur.”

Small isolated populations tend to be at a higher level of risk associated with an environmental stochastic event. Small populations on poor habitats are at higher risk due to the limited nutrition that allows animals to withstand these events from overall body health. Managing wild horses in a manner designed to maintain a thriving natural ecological balance within the productive capacity of the habitat is mandated by the Act. AML is based upon the carrying capacity of the land.

## **ISSUES NOT STUDIED IN DETAIL**

During the course of the evaluation process the following issues were identified and determined by the Responsible Official to not be studied in detail since the application of the law resolves these issues.

### **Range Expansion**

Wild horses can only be managed on areas of public lands where they were known to exist in 1971 or at the time of the passage of the act. Designation of where wild horses will be managed occurs in Resource Management Plans and Forest Plans. Areas currently closed that could potentially be opened in a Resource Management Plan are the Administrative Pastures and Crooked Creek Natural Area. Acquisition or leases of private lands could be pursued as well as areas within Bighorn Canyon National Recreation Area. However, there is no proposal to open the Administrative Pastures or Crooked Creek Natural Area, nor is there a proposal to acquire or lease private lands, nor is there a proposal to use areas within the BCNRA. Therefore, this issue is beyond the scope of the purpose and need and the decision to be made and will not be considered further in this analysis.

## **2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION**

### **2.1 Introduction**

The range of alternatives for Alternative A - No Action and Alternative B - Proposed Action were developed since they met the purpose and need of the analysis in order to be in compliance with all applicable laws, regulation and policy regarding wild horse management. Alternative C - the Continuation of Existing Management was developed and analyzed in order to more clearly show a baseline against alternatives A and B.

### **2.2 Alternative A – No Action**

The no action alternative would maintain the current management direction for the management of the PMWHR. **The current Herd Management Area Plan dated 1984 and subsequent revision of 1992 would be fully implemented. The action would manage for an appropriate management level of 95 plus or minus 10% or from 85 to 105 wild horses.** The herd would be managed for “improvement of size and conformation”. No new water developments would be constructed. Fuels treatments, would not be proposed. The boundary fence would be reconstructed and wild horses would be limited to the boundaries of the PMWHR as much as feasible.

## 2.3 Alternative B – Proposed Action

The Proposed Action is designed to manage wild horses and resources within the PMWHR in order to preserve and maintain a thriving natural ecological balance and multiple use relationships per public land laws, regulations, policy, and land use plans. **This action would include increasing the appropriate management level from 85-105 wild horses to a population range of 90-120** wild horses excluding the current years foal crop. The population would be managed using a **combination of population control techniques including gathers, fertility control, natural means or a combination of prescriptions**. The wild horses on the PMWHR would also be managed for a phenotype animal reminiscent of a “Colonial Spanish Mustang” as described by “Sponenberg North American Colonial Spanish Horses” while balancing colors, sex ratios and age structures. The action would also involve development of several guzzlers, 2 additional live water developments, 4 pothole enhancements, riparian protection and development, fuels reductions, integrated noxious weed treatment, range improvement, wildlife habitat enhancement, specific protections of sensitive plants, enhanced livestock trailing management, and reconstruction and extension of the north boundary fence. **The overall goal is to manage for healthy wild horses within healthy productive habitats.**

The proposed action is to implement the following actions and objectives to serve as the **Pryor Mountain Wild Horse Range Herd Management Area Plan**.

## **PRYOR MOUNTAIN WILD HORSE RANGE *DRAFT* HERD MANAGEMENT AREA PLAN**

### **A. Objectives brought forward from previous HMAP**

#### **Peregrine Falcon**

##### **Management Objective:**

Provide protective measures for nesting peregrine falcons in the PMWHR to ensure continued falcon productivity.

Protective measures would prohibit disturbance activities during the nesting period from February 1<sup>st</sup> through August 31<sup>st</sup>. This is according to U.S. Fish and Wildlife Service guidelines. Peregrine falcons are especially susceptible to aerial disturbance or activity above the nest site or eyrie. They actively defend their nest sites from activities above the eyrie that can cause mortality of eggs or young or nest abandonment. Due to the rugged location of the nest site little disturbance is expected from wild horses or human activities. The greatest potential for nest disturbance is from aircraft flying in close proximity to the nest site.

##### **Monitoring:**

Continue to monitor peregrine falcon productivity according to the U.S. Fish and Wildlife Service monitoring plan.

##### **Desired Outcome:**

Maintain or improve peregrine falcon productivity at one existing eyrie and monitor for other possible nest sites.



## **Predator Control**

### **Management Objective:**

Predator control actions within the PMWHR will not be taken at this time.

### **Monitoring:**

None required.

### **Desired Outcome:**

Maintain the natural balance between all levels of flora and fauna. Predator control efforts will not be requested or initiated. Additionally, the current policy will continue concerning the restriction on aerial gunning over the horse range.

## **Supplemental Feeding**

### **Management Objective:**

Supplemental feeding of the Pryor Mountain wild horse herd is a management tool which can be utilized in emergency situations.

### **ITEM:**

#### **1992 Amendment**

The dates when removal operations will not occur will be April 1 through June 30.

Helicopters may be used to move and capture wild horses except during foaling period. Helicopters may be used to spot, monitor, and inventory horses at anytime of the year.

There will be no designation of a specific number of horses by herd area.

Tranquilizers may be used in special circumstances by qualified personnel when approved by the authorized officer.

## **B. Range/Forest/Habitat Management Objectives**

### **1. Fundamentals of Rangeland Health Objective**

Make significant progress towards meeting Standards of Rangeland Health (Appendix I).

***This would be accomplished by:*** Not allowing the range conditions to deteriorate below the 2004 and 2007 measured levels at key management areas by limiting utilization levels on key forage plant species to 45 percent utilization levels throughout the PMWHR and developing additional water sources in areas with slight use and encouraging more even distribution of wild horses.

***This would be measured by:*** Conducting at least one Rangeland Health Assessment within five years and using the rangeland health assessment to determine if progress is being made.

## 2. Range Condition Objective

Maintain the current range condition and/or improve range conditions.

***This would be accomplished by:*** Not allowing the range conditions to deteriorate below the 2004 and 2007 measured level at key management areas by limiting utilization levels on key forage plant species to no more than 45 percent allowable use level throughout the PMWHR by maintaining the Appropriate Management Level. This would further be accomplished by distributing wild horse use to slightly used areas of the range through additional water developments. This may also be accomplished by allowing for aerial seeding of native grass species appropriate to the corresponding range site to supplement native forage species seed production.

***This would be measured by:*** Conducting utilization studies and use pattern mapping on seasonal basis to determine forage off take of current year's production and tracking climate and precipitation data for the region. This would also be measured at the following Key Management Areas prior to the end of the lifespan of the plan:

**Table 3 - Specific Desired Plant Community for each Key Management Area Objectives**

<b>Key Management Area C23</b>  <b>NRCS Inventory Unit National Park Work sheet #3</b>	<p><b><i>Present Situation:</i></b> Ecological site: MLRA 32 Silty Limy droughty 10":  <b>Site Index/Condition</b>-24% of HCPC or early-seral  <b>Composition</b> by weight:  Agsp 13%  Stco 2%  Arfe 5%  Cela 2%  Gusa 3%  PPFF 71%  Other 4%  <b>Cover :</b>  Not measured  <b>Frequency</b>  Agsp 44%  Stco 12%  Gusa 35%  Other 9%</p>
	<p><b><i>Measured by:</i></b> Re-read and compare Daubenmire study plots from 2007 and conduct production, cover, and ecological condition studies, and compare against the 2004 NRCS study to detect changes within ten years after management practices have changed.</p>
	<p><b><i>Objective:</i></b> Maintain or increase the level (rooted frequency) of Bluebunch wheatgrass, Needle and Thread grass and other cool-season perennial grasses. No net increase in the occurrence of Three-awn, snakeweed or invasive annuals. Maintain or increase the composition and vigor of the perennial cool season grasses within the site by weight. This will be accomplished by an allowable use level of 45% utilization levels, through more even distribution of wild horses and by maintaining the AML.</p>
<b>Key Management Area C21</b>	<p><b><i>Present Situation:</i></b> Ecological site: MLRA 43A Shallow Limy Draughty  <b>Site Index/Condition</b>-31% of HCPC or mid seral  <b>Composition</b> by weight:</p>

<b>NRCS Inventory Big Coulee Work sheet #30</b>	<p>Agsp 25% Koleria 2% Poa 1% Arno 3% Arfr 1% Artr 1% Gusa 1% AAFF 1% PPFF 65% <b>Cover:</b> Not measured <b>Frequency</b> Agsp 46% Poa,Koleria 25% Artr 22% other 7%</p> <p><b>Measured by:</b> Re-read and compare Daubenmire study plots from 2007 and conduct production, cover, and ecological condition studies, and compare against the 2004 NRCS study to detect changes within ten years after management practices have changed.</p> <p><b>Objective:</b> Maintain and or increase the rooted frequency of cool-season perennial forage species. Maintain or increase the composition of the perennial cool season grasses within the site. This will be accomplished by an allowable use level of 45% utilization levels through more even distribution of wild horses and by maintaining the AML</p>
<b>Key Management Area C20</b>  <b>NRCS Inventory Unit Britton Springs Work sheet #19</b>	<p><b>Present Situation: Ecological site:</b> MLRA 32 Shallow Gravelly-Limy 9" Draughty Basin <b>Site Index/Condition-</b>25% of HCPC early seral <b>Composition by weight :</b> Stco 12% Orhy 1% Arfe 12% Bogr 4% Spcr 7% Artr 55% Other 9% <b>Cover basal:</b> all grasses 2% <b>Frequency:</b> Stco 6% Bogr 55% other 39%</p> <p><b>Measured by:</b> Re-read and compare trend study plots from 2007 and conduct production, cover, and ecological condition studies, and compare against the 2004 NRCS study to detect changes within ten years after management practices have changed.</p> <p><b>Objective:</b> Maintain or increase the current level (rooted frequency) of Needle and Thread grass and other cool-season perennial grass species. No net increase in occurrence of Three-awn, grama, snakeweed or invasive annuals such as cheatgrass and halogetan. Maintain or increase the composition and vigor of the perennial cool season grasses by weight and basal cover within the site This will be accomplished by an allowable use level of 45% utilization levels through more even distribution of wild horses and by maintaining the AML.</p>

<p><b>Key Management Area C19</b></p> <p><b>NRCS Inventory Unit Penn's Cabin Work sheet #2</b></p>	<p><b>Present Situation:</b> Ecological site: MLRA 43A Silty 26  <b>Site Index/Condition</b> 31% of HCPC or mid seral  <b>Composition by weight:</b>  Feid 3%  Dain 2%  Koleria 1%  Other 1%  Sedge 1%  Lupine 54%  PPFF 38  <b>Cover:</b>  Grasses 16%  PPFF 21%  Litter 53%  <b>Frequency:</b>  Feid 15%  Pofe-5%  Sedge53%  Other27%</p> <p><b>Measured by:</b> Re-read and compare Daubenmire study plots from 2007 and conduct production, cover, and ecological condition studies, and compare against the 2004 NRCS study to detect changes within ten years after management practices have changed.</p> <p><b>Objective:</b> The high elevation areas have the greatest potential for improvement due to precipitation levels. Increase the occurrence of cool season perennial forage species; reduce the occurrence of pincushion, poisonous plants such as death camas and lupine, increase the basal cover of Idaho Fescue and other cool season perennial bunchgrasses. This will be accomplished by an allowable use level of 45% utilization levels through more even distribution of wild horses through more water developments and by maintaining the AML.</p>
<p><b>Key Management Area C18</b></p> <p><b>NRCS Inventory Unit Burnt Timber Work sheet #22</b></p>	<p><b>Present Situation Ecological site:</b> MLRA 32 Silty Limy  <b>Site Index/Condition</b> 16% of HCPC or early seral  <b>Composition by weight :</b>  Present lbs per acre  Agsp 5%  Poa 1%  Stco 1%  Artr 5%  Arno 31%  PPFF 54%  Other 8%  <b>Cover: Not measured</b>  <b>Frequency:</b>  Agsp 59%  Poa,Orhy, Stco 11%  Artr 7%  other 13%</p> <p><b>Measured by:</b> Re-read and compare Daubenmire study plots from 2007 and conduct production, cover, and ecological condition studies, and compare against the 2004 NRCS study to detect changes within ten years after management practices have changed.</p> <p><b>Objective:</b> Maintain Bluebunch wheatgrass and or increase the rooted frequency of other cool-season perennial forage species. Maintain or increase the composition of the perennial cool season bunchgrasses within the site This</p>

	will be accomplished by an allowable use level of 45% utilization levels and through more even distribution of wild horses while maintaining the AML.
<b>Key Management Area C17</b>  <b>NRCS Inventory National Forest (BLM)</b> <b>No work sheet for that ecological site</b>	<p><b>Present Situation Ecological site:</b>  MLRA 43A Shallow Limy  <b>Condition Overall</b> 45% of HCPC mid seral  <b>Composition :</b> by weight <b>not measured</b>  <b>Cover: not measured</b>  <b>Frequency</b> of veg. Agsp 47%  Poa, Orhy, Stco 5%  Arno 18 %  other 30%</p> <p><b>Measured by:</b> Re-read and compare Daubenmire study plots from 2007 and conduct production, cover, and ecological condition studies, and compare against the 2004 NRCS study to detect changes within ten years after management practices have changed.</p> <p><b>Objective:</b> Maintain the 2007 level of Bluebunch wheatgrass; increase other cool-season perennial grasses. Maintain or increase the composition of the perennial cool season grasses within the site This will be accomplished by an allowable use level of 45% utilization levels through more even distribution of wild horses and maintaining the AML.</p>

### 3. Sensitive Species Wildlife Habitat Objective

Priority for T & E species, agency sensitive species including peregrine falcon, bats, Yellowstone Cutthroat trout, and some passerine birds.

***This would be accomplished by:*** Identifying key areas with cooperators and repeat species surveys every 5 years

***This would be measured by:*** Monitoring species occurrence/abundance in key wildlife areas to establish baseline diversity

### 4. Forest Health/Habitat Objective

Promote forest stand conditions that the trend toward the natural range of variability through the use of prescribed fire.

***This would be accomplished by:*** Using prescribed fire to bring forest stands within the natural range of variability for the existing forest types: Douglas fir, limber pine and sub alpine fir.

***This would be measured by:*** Assessing the general forest composition within five years.

### 5. Fuels Management Objective

Use prescribed fire in cooperation with the Forest Service and National Park Service, to move the area toward Condition Class I.

***This would be accomplished by:*** Reducing fuel loading and composition using prescribed fire to prevent the loss of timber resources to wild land fire.

***This would be measured by:*** Assessing the level of condition class over the entire Pryor Mountains in five-year intervals.

## **6. Riparian Objective**

Manage for proper functioning condition on applicable riparian areas

***This would be accomplished by:*** Treatment of specified riparian areas for invasive weeds and protecting riparian areas from grazing impacts through infrastructure development.

***This would be measured by:*** Conducting proper functioning condition assessments on all riparian areas within the PMWHR.

## **7. Invasive and Noxious Plants Objective**

Treat all areas infested with noxious weeds and eradicate current infestations of noxious plants while continuing to monitor for new infestations. Contain the distribution of invasive species to areas where currently found and prevent new areas from being dominated by these species.

***a. For Noxious plants this would be accomplished by:*** Immediately treating the spotted knapweed along the length of the Burnt Timber road and adjacent rangelands or any new infestations. Immediate treatment of tamarisk (salt cedar) along all the low elevation drainages and Cottonwood Spring area or any new infestations detected. Treatment of **all** other noxious plants that are detected including new plants that are identified on the annual state list for noxious plants during the lifespan of this plan.

***b. For Invasive plants this would be accomplished by:*** Containing the distribution of invasive species (see map #9) and not allowing the ecological conditions to deteriorate below the 2004 and 2007 measured level at key management areas through limiting utilization levels on key forage plant species to no more than a 45% allowable use level throughout the PMWHR by maintaining the Appropriate Management Level. This would further be accomplished by distributing wild horse use to slightly used areas of the range made by wild horses through additional water developments. This may also be accomplished by allowing for aerial seeding of native grass species appropriate to the corresponding range site to supplement native forage species seed production.

***This would be measured by:*** Monitoring treated areas for the recurrence of knapweed and tamarisk as well as continued monitoring for detection of new infestations of Noxious Plants. For invasive species this will be accomplished by comparing and monitoring current distribution of cheatgrass, halogeton, mustards, and other species classified as invasive against the distribution within ten years after management practices have changed.

## C. Population Management Objectives

### 1. Appropriate Management Level Objective

Re-establish the AML **from 95 plus or minus 10% to a population range from 90 to 120 wild horses** (excluding current years foal crop) year round.

***This would be accomplished by:*** Not allowing the population to exceed the capacity of the habitat to support healthy horses in a “thriving natural ecological balance” by maintain the population within the “productive capacity of their habitat” and “preventing the range from deteriorating associated with an overpopulation of wild horses.” Manage the herd within the AML either through removals, fertility control, natural means, or a combination of methods.

The AML is expressed as a population range with an upper and lower limit to the AML. During gather cycles reduce the herd to the low range of AML and treat with fertility control to limit herd growth allowing the herd to grow to the upper level of AML over an extended period of time. As the population approaches the upper population range of AML initiate a gather prior to exceeding the AML. If drought occurs reduce the herd to the low population range of AML rather than waiting for a build-up to the upper population range.

***This would be measured by:*** Conducting helicopter census on a yearly basis as well as on the ground tracking through the use of BLM personnel and volunteers to monitor the population level.

### 2. Herd Characteristics Objective

Manage for a phenotype reminiscent of a Colonial Spanish Type horse, with an even representation of sex ratios, age classes, and color basis that prevents any one color becoming dominant or being eliminated. Prevent bloodlines from being eliminated while maintaining a core breeding population composed of 5-10 year old animals.

***This would be accomplished by:*** Each active breeding mare would have at least one progeny to carry forward into the next generation. Animals that are no longer breeding or have contributed genetically would be removed unless needed to achieve AML

***This would be measured by:*** Monitoring which animals are no longer contributing or have already contributed genetically. Keeping track of which foals are from the same sire and mare and have representation within the herd.

### 3. Selective Removal Criteria

Remove wild horses in the following order:

1. Horses not exhibiting phenotypic “Colonial Spanish Type” of any age class or kinship



2. Non reproductive animals that have contributed to the population of any age class.
3. Animals under five years old.
4. Animals over 11 years.
5. Animals between 5-10 years old.

***This would be accomplished by:*** Following the removal criteria.

***This would be measured by:*** Determining which animals are off type. Monitoring which animals are no longer contributing to breeding population and track which young animals are from the same sire and mare.

#### **4. Genetic/Animal Health Objective**

Maintain healthy horses in a healthy body condition with a high level of genetic variation within the population to prevent inbreeding depression or genetic drift. Prevent *Ho* from falling near a level of 0.25 (an indicator of inbreeding depression).

***This would be accomplished by:*** Maintaining and promoting the breeding core of the population of 5-10 year olds. Ground tracking of wild horse population demographics to monitor sex ratios, kinship and band size. Maintaining a sex ratio of at least 50 percent stallions to mares and no more than 60 percent stallions to mares in any one year. A slightly higher level of stallions ensures that a higher level of genetic exchange occurs. Retaining a high level of genetic variability within a small population is paramount to the continued success of that population. An even or slightly higher male to female ratio also slows the recruitment rate of the population reducing the need for removals as often to maintain the AML.

***This would be measured by:*** Genetic samples will be taken from animals at least every five years to measure the *Ho*. Taking genetic samples during every gather cycle or as necessary. A chart of kinship between animals will be developed in order to track relations between breeding animals. **If *Ho* does start to fall below the last measured level of .407 due to management actions of this plan introduce 2-3 mares to infuse genetic variation. (See mitigation measure # 1)**

##### **a. Distribution**

Limit wild horses to the PMWHR. Encourage use of areas within the range that are slightly used to limit animal competition for forage and resources while providing for greater nutritional opportunities for each animal

***This would be accomplished by:*** Limiting wild horses to within the boundaries of the PMWHR as well as developing additional water sources to encourage more use within mid-slope areas on a more regular basis.

***This would be measured by:*** Tracking wild horse movements and use patterns.

## **b. Body Condition**

Manage wild horses in a manner that allows for a minimum of a Henneke Body Class Condition of 4 or greater under “normal” range conditions.

***This would be accomplished by:*** Maintaining the AML and develop water sources in mid-slope areas of the range, conducting fuel treatments to provide additional areas of forage and aerial seeding of deteriorated areas of the range.

***This would be measured by:*** Tracking wild horse movements and use patterns and Henneke body class condition, vegetation studies and project implementation log.

## **D. Other Resources**

### **1. Cultural and Paleontological Resources Objective**

Protect and enhance archaeological and paleontological resources in the PMWHR while supporting the demand for administrative, commercial, and recreational use of the PMWHR.

***This would be accomplished by:*** Conducting inventories for proposed projects within the PMWHR, and monitoring, restoring, and repairing at-risk or threatened cultural or paleontological sites.

***This would be measured by:*** Determining which resources are most at-risk or threatened and turning threats into opportunities for protection and enhancement.

### **2. Recreation Objective**

Maintain and enhance a variety of recreational opportunities to meet public demand in the PMWHR.

***This would be accomplished by:*** Developing a Recreation Management Plan for the range. This plan will provide management guidance for future recreation opportunities that work in harmony with the objectives for herd management.

***This would be measured by:*** Monitoring visitor use and visitor contacts and monitoring changes in wild horse movements and use patterns.

### **3. Wilderness Study Areas Objective**

Manage wilderness characteristics for non-impairment until designation or release from WSA status.

### **4. Sensitive Species Objective**

Manage to prevent sensitive species from being candidates for listing as federally threatened.

## E. Other Objectives

### 1. Wild Horse Protection Objective

Protect wild horses from harassment, **commercial exploitation** and undue harm.

### 2. Wild Horse Interpretation Objective

Re-evaluate the current practices of public outreach in order to ensure the public has a clear and concise message as to the authorities, policies, practices and management limitations regarding the Pryor Mountain Wild Horse Range.

***This would be accomplished by:*** Developing and maintaining kiosks with pertinent information at all entrances to the wild horse range. This would be further accomplished by ensuring that each respective agency's authorities, policies, practices, and management limitations are provided at each entrance or public contact point.

### 3. Livestock Trailing Objective

Limit livestock trailing through the PMWHR on the Bad Pass route to avoid conflicts with wild horses.

## F. Projects

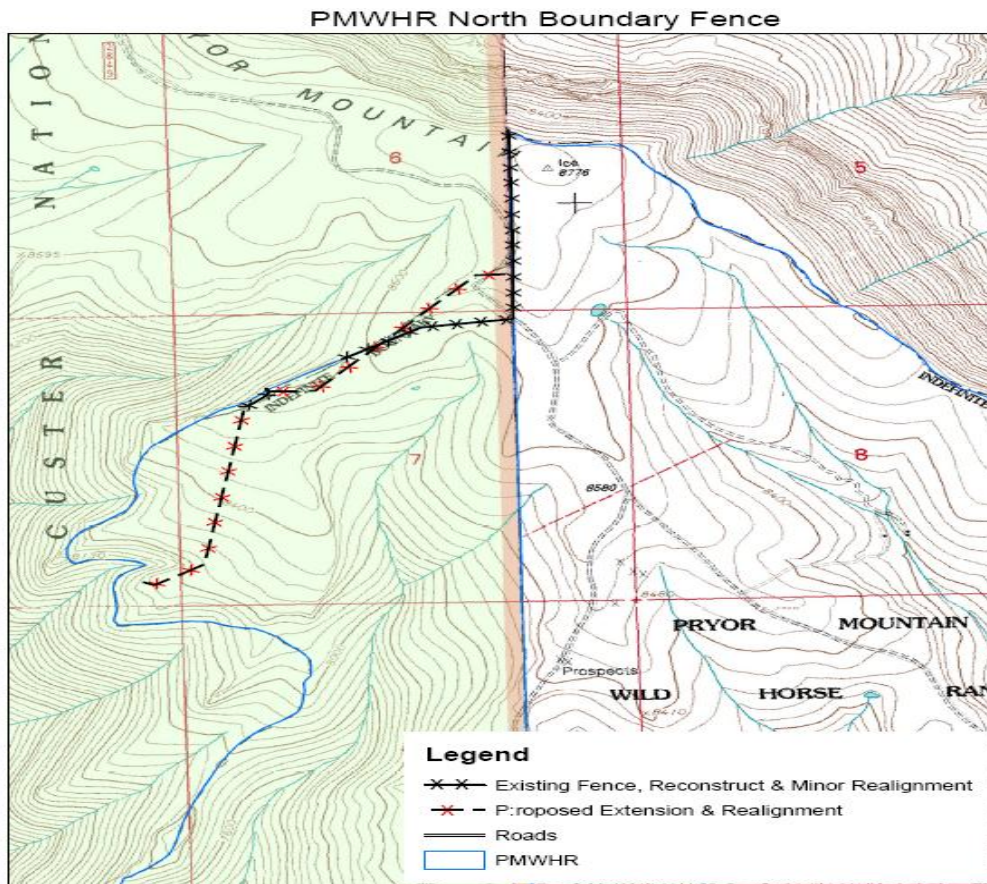
Projects are listed in order of implementation needed to meet objectives.

**1. North Boundary Fence** would be reconstructed (~1.3 miles) with minor realignment and extended (~ 0.5 miles) to allow for more effective confinement of wild horses to the PMWHR. Buck and rail / jack leg material would be used.



Photo 1 - North Boundary Fence Reconstruction and Extension

Map 4



**2. Treat all noxious plant infestations** immediately with a specific emphasis on the Burnt Timber Road due to the progression of knapweed and the large amount of vehicle traffic that can disperse the seeds.

**3. Guzzler Developments outside WSA** water catchments or wildlife guzzlers (see appendix 7) would be developed to act as additional watering points for wild horses and wildlife. The area of emphasis would be the mid-slope areas of the wild horse range to encourage more wild horse use where forage conditions are more favorable. Each guzzler would be developed with a fence around the apron either smooth cable or jack and leg fence with a fence that could be used to close off the water source if utilization of forage plants exceed allowable use levels.

**4. Guzzler Developments within WSA** water catchments or wildlife guzzlers would be developed to act as additional watering points for wild horses and wildlife **only if the development and presence doesn't impair the "wilderness characteristics."** The emphasis for development sites would be the mid-slope areas of the wild horse range to encourage more wild horse use where forage conditions are more favorable. Each guzzler within WSAs would be developed with a fence around the apron of jack and leg fence with a fence that could be used to close off the water source if utilization of forage plants exceed allowable use levels.

Guzzler development would consist of a Catchment Apron, 100' x 22.5' made of 40 mil thick or better textured, high-density polyethylene liner, pre-welded with a 2.5" diameter pipe boot and clamps. A well screen, 2' long of four-inch diameter 20-slot stainless steel adapted with 2" iron pipe thread (IPT) 250' roll of 2" diameter, 160 PSI, SDR 11, HDPE Pipe one BOSS Complete Wildlife Water Catchment Tank (cross-linked polyethylene, 1800 gallons storage, with small animal ladder and 2" overflow adapter pre-installed).

The construction would consist of a small hole that is 12 to 18 inches deep by 6 feet wide and 16 feet long in order to place the unobtrusive style storage/drinker tank. The tank is an earth tone brown that is non-reflective. The soil from this tank placement would be saved on site and used for placement of the apron. An apron bed would be prepared by removing the vegetation and large stones from a 24 foot by 100 foot area and turning the soil for a bed. A small trench would be dug around the "bed" and soil from the trench and the tank placement would be used to create a 1 to 2 foot berm on the inside of the trench. The apron would be unrolled over the bed with the outside edges laid over the berm into the trench. The trench would be backfilled, the stones from the clearing would be placed on the apron and around the drinker part of the tank and an above ground poly pipe would run from the apron to the tank/drinker. A fence would be placed around the apron for protection, vegetation (primarily sage brush) would be scattered. All material within the WSA would be "slung" in by helicopters. No top soil would leave the site as it is being utilized under the apron and any disturbance would be seeded with species appropriate to the site (primarily but not limited to bluebunch wheatgrass).

**Proposed Guzzler locations would consist of the following locations:**

**Horse Trap Guzzler** would be located off Sykes Ridge at the Universal Trans Mercator location 12T 0711133 UTM 4997112 within the Pryor Mountain WSA. This site would consist of two tanks and aprons. The vegetation community is primarily low sage, bluebunch wheatgrass with an over story of stunted Douglas fir.



Photo 5 - Proposed Site of Horse Trap Guzzler



**Mid-Ridge Guzzler** would be located south of the Sykes Catchment in a small bowl visually screened by topography and a small stand of trees. The guzzler would consist of one tank and apron. The vegetation is primarily bluebunch wheatgrass. The location is at the Universal Trans Mercator location 12T 0711133 UTM 4993163 outside the WSA.



Photo 6 - Proposed site of Mid-Ridge Guzzler

**Bat Guzzler** would be located east of Four Eared Bat Cave. The guzzler would consist of one tank and apron and be visually screened within a stand of Junipers. The site is within a black sage bluebunch wheatgrass plant community. The location is at the Universal Trans Mercator location 12T 0713964 UTM 4985411 within the Bighorn Tack-On WSA.



Photo 7 - Proposed site for Bat Guzzler

**Mine Guzzler** is located on Burnt Timber Ridge adjacent to a stand of junipers for visually screening. The site is black sage/bluebunch wheatgrass. The location is at Universal Trans Mercator location 12T 07098944 UTM 4991915. This site is within the Pryor Mountains WSA. This site would consist of one tank and one apron.



Photo 8 - Proposed Mine Guzzler site

**Boundary Guzzler** would consist of one tank and apron. The vegetation community is primarily low sage, bluebunch wheatgrass with an over story of stunted Douglas fir and scattered juniper. This site is located at Universal Trans Mercator location 12 T 0708601 UTM 4995390 outside the Burnt Timber WSA.



Photo 9 - Proposed Boundary Guzzler site

**Jacks Farm Guzzler** would consist of two tanks and aprons. The site is visually screened within a stand of junipers. The vegetation community is composed of blacksage/bluebunch wheatgrass/Utah juniper. This site is within the Burnt Timber WSA. See proposed water development map.





Photo 10 - Proposed Site in the saddle for Jacks Farm Guzzler

**Skyline Guzzler.** This site would be comprised of two tanks and aprons. It is located above the Krueger Private Lands on BLM outside any WSA. See proposed water development map.

**BCNRA Guzzler** - the exact location would be determined at a later date. The general area is south of Mustang Flat along the KV power line road.

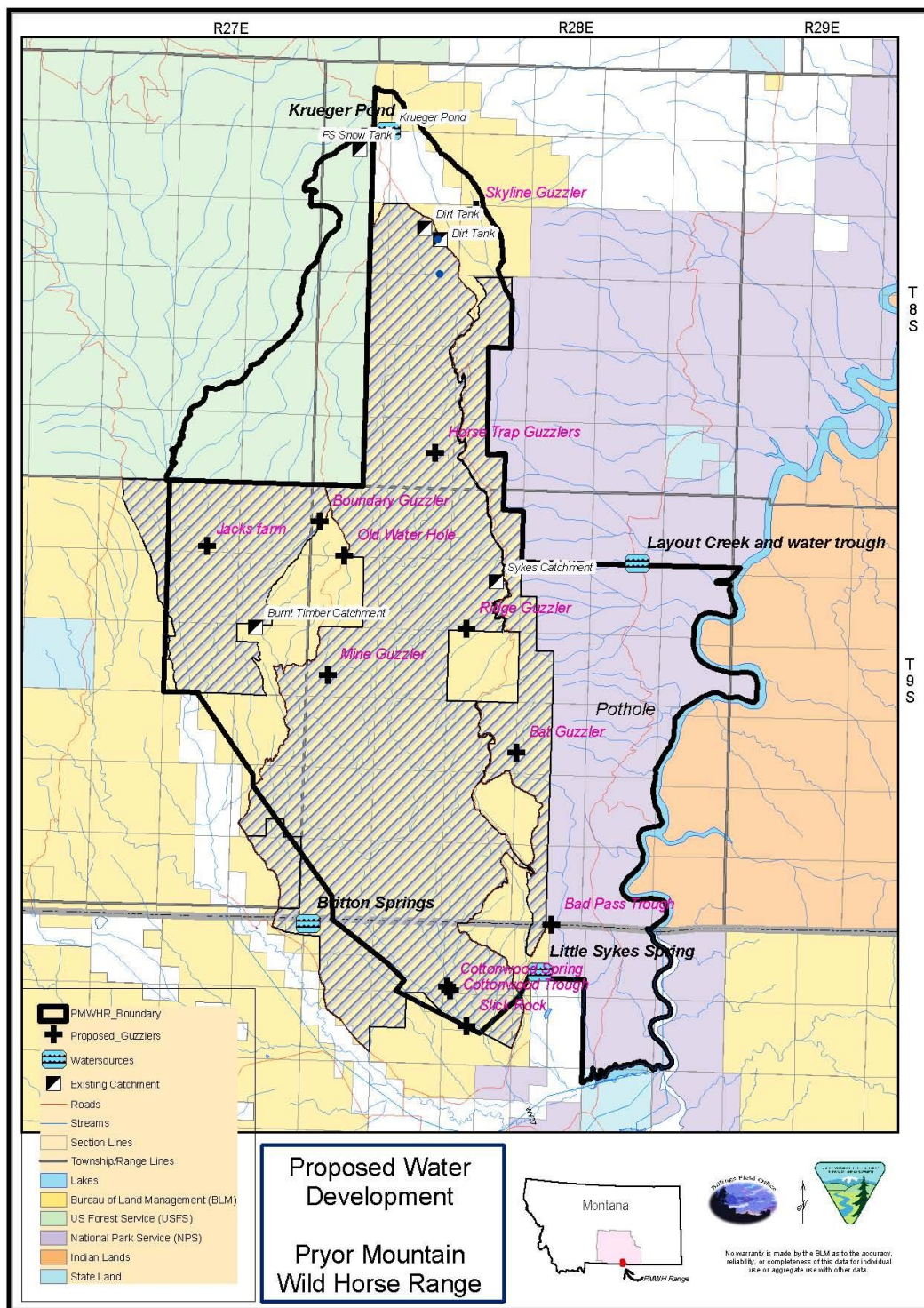
**5. Water catchments/enhancing potholes.** Natural water catchments that could hold water with very little disturbance by developing small dams off of natural seasonal water flows and digging out and lining potholes and existing dirt water tanks.

**6. Cottonwood Spring Riparian Restoration** and water development would be conducted if **impairment to the “wilderness characteristics” doesn’t occur.** The action would consist of treatment and removal of the salt cedar (tamarisk) and Russian olive. The old wild horse trap would be dismantled and the material used to make a riparian enclosure to rehabilitate and protect the riparian area. A small spring box and short pipeline down the active wash would be developed to allow wild horses to drink in a less environmentally sensitive area.

**7. Seep to Bad Pass.** A small spring box and short pipeline down the active wash would be developed with a trough to allow wild horses and wildlife to drink in an additional area. If a spring box cannot be developed an earthen dam will be built to create a water source for wild horses.

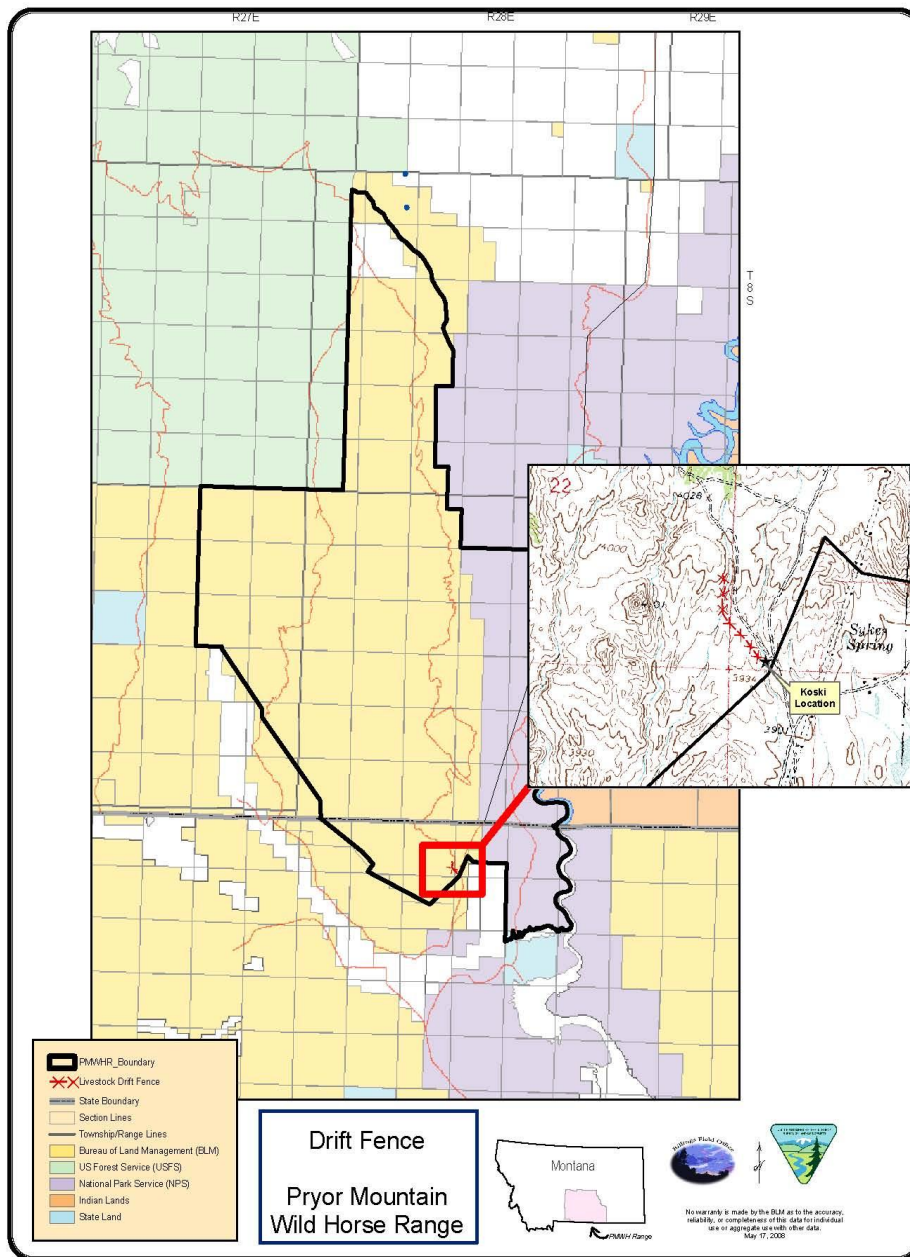
**8. Little Sykes Spring.** The riparian enclosure and water development will be maintained. Rehabilitation of the saline meadow at the old corral site will be accomplished using a mix of native species appropriate for the sight. A temporary fence of the site will be constructed to aid in the success of the rehabilitation.

**Map 5 - Proposed Locations of Individual Water Developments**



**9. Drift Fence.** South Entrance of the wild horse range near the Tillet Fish Hatchery. (See map) A short drift fence of ¼ to ½ mile consisting of steel posts and wire would be constructed. This would prevent livestock from wandering down the south boundary fence line onto the wild horse range. This fence line would act as a “wing” to catch livestock and direct them onto the county road. The drift fence would not preclude wild horses from utilizing all portions of the range. It would protect forage for wild horses.

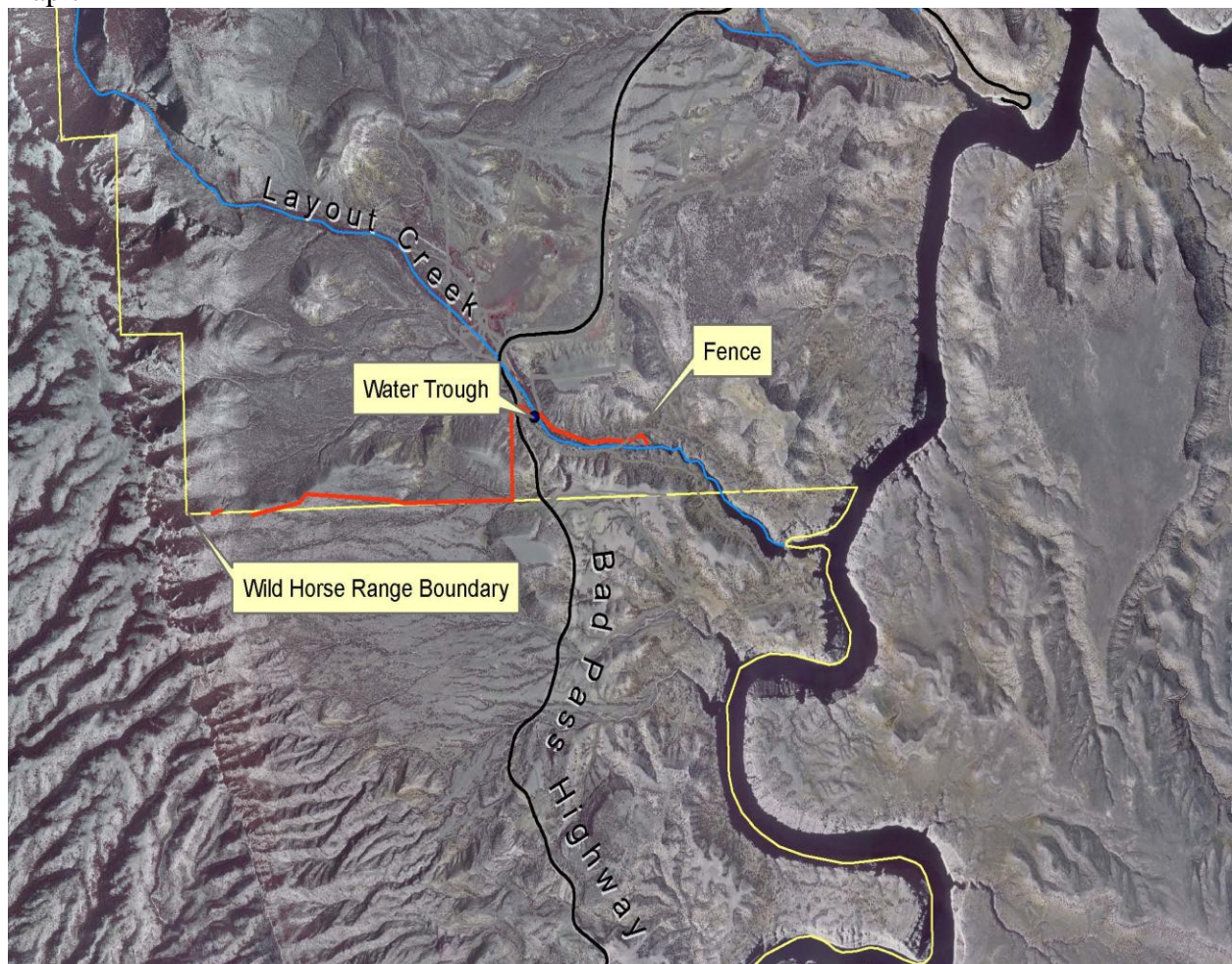
Map 6





**10. Layout Creek.** Move northern Park Service horse range boundary fence closer to the horse range boundary. Currently, Layout Creek serves as the boundary, but is not the actual boundary. Moving the fence would allow improvement of range conditions by allowing control of access to water. Currently, horses have access to a trough, and to the creek. Rebuilding approximately 1 mile of fence to exclude the creek from wild horse use, and filling the trough for wild horses to drink instead would allow for better distribution of horses on the range.

Map 7



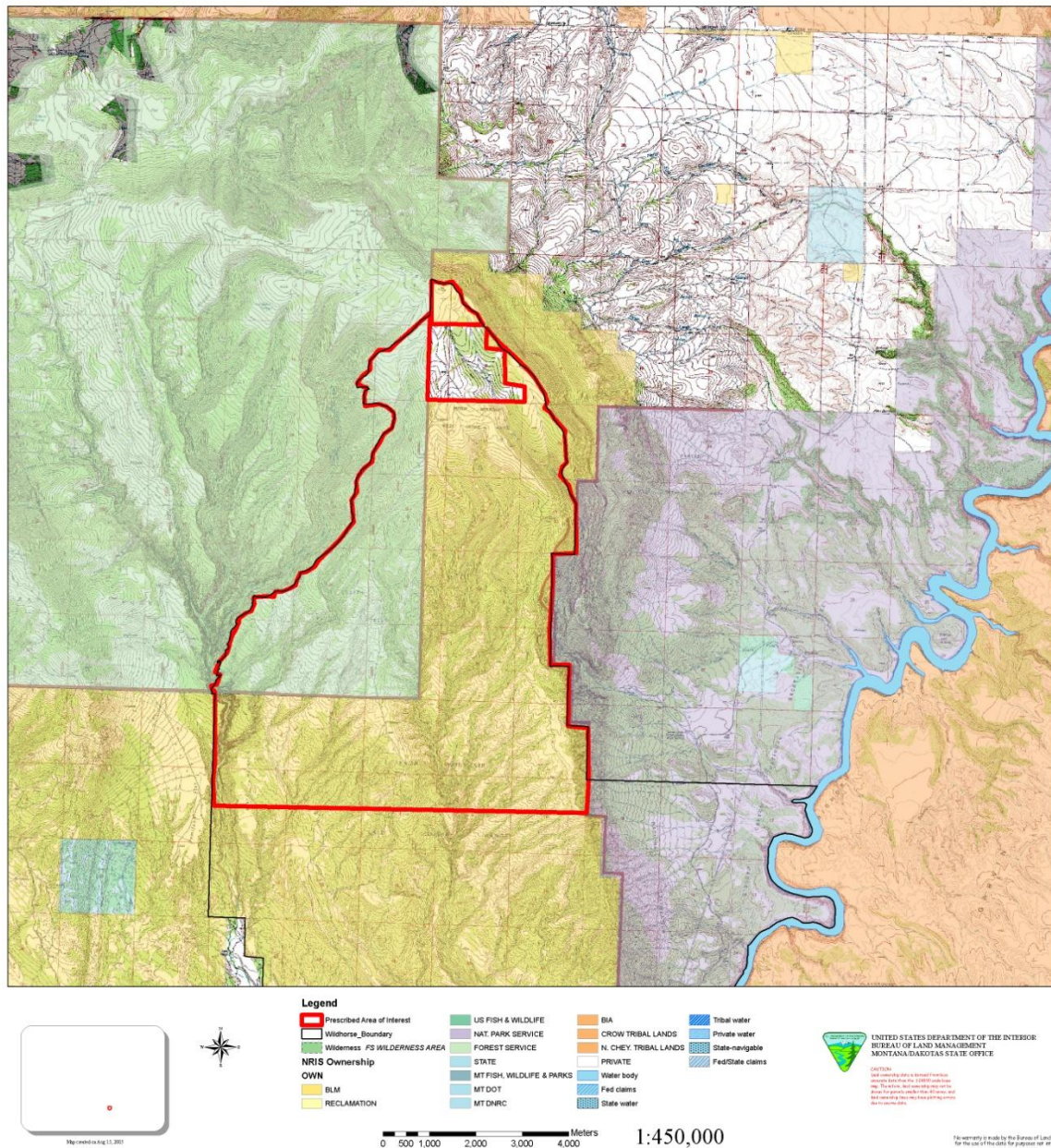


**11. Prescribed Fire Habitat Enhancement.** Prescribed fire for the enhancement of forest health, wildlife and wild horse habitat could occur primarily in the mapped area identified below.

Map 8

### Pryor Mountain Prescribed Fire Area of Interest

State of Montana



**12. Supplemental seeding.** Aerial seeding with native species appropriate to the Pryor Mountain Wild Horse Range would be used to supplement seed source and attempt to improve ecological conditions. Seeding would occur in low elevations first, high elevation second and mid slopes last. In order to ensure non-impairment of wilderness characteristics until designation

or release from WSA status, any seeding would have to be completed non-mechanically (no ground disturbance) and seeds would have to be tested to ensure purity.

## **2.4 Alternative C – Continuation of Existing Management**

The existing management alternative consists of managing the Pryor Mountain Wild Horse Range and areas adjacent to the PMWHR in their current state. Under this alternative wild horse numbers wouldn't necessarily be tied to the appropriate management level or the wild horse range. Remote darting of wild horses with Porca Zona Pellucida would remain the primary means of population management for an undetermined population objective. No new range improvement projects would be implemented. Without water improvements, opportunities for improved distribution would not be realized. Without fencing improvements, non-conformance with public land laws, regulations, policy, and land use plans would continue. Range conditions would continue to deteriorate and the forage base and ecological condition would continue to be reduced. The carrying capacity of the range would continue to decline. The PMWHR would continue to be at risk for catastrophic wildland fire placing the herd and lands at risk.

## **2.5 Alternatives Considered, but Eliminated from Further Analysis**

### **2.5.1 Natural Management Alternative**

An additional alternative considered was to have purely “natural management” of the population. This alternative was eliminated from detailed analysis because it would not achieve the purpose or need for the action. Although the Wild and Free Roaming Horse and Burro Act does allow for “natural means” for population control it does not allow for range deterioration. An ecological balance between grazing animals and resources would eventually be met once the range deteriorated beyond the point that forage species are eliminated or are such a small component of the plant community that wild horses would eventually start to die of starvation.

Also, although mountain lions have been documented as preying upon foals, not enough animals are killed to maintain the appropriate management level. In 2001 one foal was documented as being killed by a mountain lion. In 2004 much of the foal crop loss was attributed to mountain lion kills but there is no actual documentation of the absolute cause. Mountain lions are not now controlling the population nor have they historically controlled the population on the PMWHR.

### **2.5.2. Range Expansion Alternative**

Another alternative considered was expansion of the wild horse range on BLM or National Forest System lands. This alternative is dismissed from detailed analysis since the BLM and Forest Service are prohibited by law from managing wild horses on public lands outside of areas were documented as being “presently found” at the time of the passage of the Act in 1971. Horses were in the Pryor Mountains historically, but by 1968 they were largely limited to the 1968 designated range due to the Forest Service south boundary fence. Though there is much supposition as to the extent of wild horses in 1971, comprehensive agency inventories and assessments, and public involvement provided the basis for Herd Area and Territory boundaries

per the 1971 Act. Subsequent land use planning efforts in 1984 (BLM) and 1987 (USFS) validated the same areas as being wild horse herd management area and territory, respectively. These planning efforts included public involvement and opportunities for appeal. Herd management area or territory designation is determined during land use planning process in BLM resource management plans and forest plans.

### 3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

#### 3.1 Introduction

This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic values and resources) of the impact area and presented in Chapter 1 of this assessment.

This chapter also describes the changes to those resources that would occur if the No Action, Proposed Action, and Current Situation Alternative were implemented and the potential Cumulative Impact to that resource.

#### 3.2 Critical Elements of the Human Environment

The affected environment of each alternative was considered and analyzed by a multi-disciplinary team as documented in the List of Preparers. Certain resources are protected by specific laws, regulations, or policies (e.g., Executive Orders). BLM refers to these resources as “Critical Elements of the Human Environment” and addresses them in all EAs. Those Critical Elements that are identified below as being present and potentially affected would be analyzed further in this chapter. The affected environment and environmental impacts are described for all resources, including Critical Elements, which are potentially affected by the proposed action.

**Table 4 - Critical Elements**

CRITICAL ELEMENTS		
Determination*	Resource	Rationale for Determination
PI	Air Quality	This action would allow for the use of fuels reductions through fire. Smoke in the air could potentially affect the air quality on short term basis, subsequent analysis would have to be completed to conduct a fuels reduction treatment.
NI	Areas of Critical Environmental Concern	The East Pryor Mountains were designated as an ACEC in March 1999 to conserve the area for wild horses, paleontological values, recreational use, and fish and wildlife habitat The proposed action would have no impact on these values.
NI	Cultural Resources	See analysis below
NP	Environmental Justice	The proposed action would have no effect on minority or economically disadvantaged people or populations
NP	Farmlands (Prime or Unique)	There are no prime or unique farmlands within the area.

CRITICAL ELEMENTS		
Determina-tion*	Resource	Rationale for Determination
NP	Floodplains	There are no floodplains within the area.
PI	Invasive, Non-native Species	Tamarisk (saltcedar) occurs sporadically in the low elevation areas of the range. All coulees in the low elevation have tamarisk as well as Cottonwood spring. Knapweed is along the entire stretch of Burnt Timber (Tillet Ridge) road.  Cheatgrass is widespread in the low elevation areas especially Big Coulee and along Sykes ridge with sporadic occurrences on Burnt Timber. Halogeton is very common along the south entrance of the horse range and adjacent range lands. Mustards are wide spread in the low elevation areas. Russian Olive occurs at Cottonwood spring.
NP	Native American Religious Concerns	Although some traditional cultural properties occur within the project area no Native American Religious Concerns are known in the area, and none have been noted by Tribal authorities. Should recommended inventories or future consultations with Tribal authorities reveal the existence of such sensitive properties, appropriate mitigation and/or protection measures may be undertaken.
NP	Threatened, Endangered or Candidate Plant Species	Only Bureau and USFS sensitive species present, see impacts/mitigation
NP	Threatened, Endangered or Candidate Animal Species	On Forest Service portions of the range formerly unoccupied habitat has been designated for the Canada Lynx. State and Agency Sensitive Species are Present on BLM portions of the range—see Impacts/ Mitigation
NP	Wastes (hazardous or solid)	There are no hazardous or solid wastes located within the planning area.
NP	Water Quality (drinking/ground)	The proposed action would have no affect on ground or drinking water.
PI	Wetlands/Riparian Zones	Crooked Creek is within the planning area and could be affected by the proposed action. Cottonwood Spring would be affected and Krueger pond would be affected. See analysis below.
NP	Wild and Scenic Rivers	There are no Wild and Scenic Rivers located within the project area.
NI	Wilderness	The BLM is prohibited from taking any actions within or adjacent to Wilderness Study Areas that would impair the wilderness characteristics or prevent an area from potentially being designated Wilderness. Actions could have minor, short term impacts on wilderness attributes but the effects would not be irreversible or irretrievable. If desired, these unnatural features could be removed.
* NP = not present in the area impacted by the proposed or alternative actions NI = present, but not affected to a degree that detailed analysis is required PI = present with potential for impact.		

Cumulative impacts are impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.



### 3.3 Scope of Cumulative Effects Analysis

The area identified for the cumulative effects analysis is the PMWHR and adjacent lands within the Pryor Mountains managed by the BLM, Custer National Forest, BCNRA, State and private lands. The reason for this area being selected is that the land unit is considered an island of forested/montane grassland landscape in the larger prairie-grassland and semi-desert ecosystems in which the three agencies have substantial influence in the area's management. Surrounding lands are primarily private lands managed for livestock use, with the Crow reservation to the north, and will not be considered in detail in this analysis.

The temporal scale (time limits for past activities) selected for this project is from the early 1900s to the present. This temporal timeframe captures shifts on the landscape due to uranium mining and reductions in the levels of livestock grazing. This mining and grazing era had impact on the project area and the subsequent management activities that resulted from these activities are within a timeframe where the impacts can overlap with wild horse management.

In order to conduct a cumulative effects analysis, the alternatives considered under this Environmental Assessment must be considered in light of past, present, and reasonably foreseeable future projects (40 CFR 1500 and 36 CFR 1508.6). According to the BLM handbook *Guidelines for Assessing and Documenting Cumulative Impacts* the cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance.

#### Past Actions

During the 1500s the Spanish explorers brought the modern horse with them from Spain and the rest of Europe. Many of these animals became feral and roamed the grassland of the plains, as well as isolated mountain ranges of the west where the Spanish had explored or settled. As the horse became more prevalent native peoples began using the horse and by the early 1700s the Plains Indian was using the horse as regular part of their existence. In the Pryor Mountains the Crow and Eastern Shoshone were using the area on a regular basis. As additional settlers arrived in the western United States, they brought many breeds of horses with them; each breed was developed for unique tasks or purposes. As these settlers passed through Montana and Wyoming or settled, some of these horses became feral or were purposely turned loose on the range and used as a commodity. By the early 1900s thousands of horses were running free throughout the Bighorn Basin and the Crow Reservation.

From the late 1800s until the 1930s, many horses were produced on the range for use in the Calvary remount program. Many Arabian and thoroughbred stallions were released on the range to reproduce with wild mares in order to obtain progeny that had endurance and other characteristics required by the military. Wild horses on the rangelands were periodically gathered by private individuals. The young wild horses were sold to the military, and the undesirable stallions and mares were destroyed to eliminate their characteristics from the gene pool. After the end of the Calvary remount program, many wild horses were captured to be sold for rendering profits. Wild horses were viewed as a nuisance and/or commodity. Many "mustangers" operated

in the Bighorn Basin, capturing wild horses and selling them for slaughter, or keeping a few for personal use.

In 1934 Congress passed the Taylor Grazing Act establishing grazing districts and the Grazing Service. This act was the first step in regulation of grazing use on the public lands. In 1946 the Grazing Service was merged with the General Land Office and the BLM was formed. Local ranchers were permitted to run horses on public lands under their grazing permit. Wild horses were not federally protected and individuals that claimed ownership or mustangers with permission from the BLM continued to capture unbranded horses and use the wild horses for commercial purposes.

The Pryor Mountains during the early years of the Custer National Forest were a catchall for horse trespass. By the 1920s, the Forest Service began an extensive effort to curtail horse trespass. In 1935, the Pryor Division of the Custer National Forest was closed to all horses by Secretarial Order. By the 1940s the concerted efforts to remove trespass horses from Forest Lands and the construction of the southern boundary fences pushed most of the horses to the public domain to the south, east and west of the National Forest.

Post World War II demand for Uranium for the nuclear age was generated. Due to this climate it leads to the mining and exploration activities within the Pryors. The road systems and trails are a direct result of this activity.

In 1959 Congress passed the Wild Horse Annie Act. This act protected wild horses from being captured, harassed or chased with motorized vehicles.

By 1968, most horses were largely concentrated on the landscape east/southeast of Forest Service lands due to the USFS/BLM boundary fence and previous actions. This general area ended up being the lands designated as the PMWHR originally created by order of the Secretary of the Interior, Stewart L. Udall on September 9, 1968. The Secretary established the range in response to public outcry over the BLM's planned removal of estray (unbranded) and trespass (branded) horses. This was the first such designation in the United States. At the time the 1968 PMWHR encompassed 33,600 acres of public land in Montana and Wyoming. In 1969 an adjustment occurred, adding lands administered within Wyoming.

In December 1971, the Wild Free-Roaming Horse and Burro Act was signed into law. The management and protection of all unclaimed wild horses and burros was delegated to the Secretaries of the Interior and Agriculture through their agencies of the Bureau of Land Management and Forest Service as outlined in Section 2 of said Act (as the act was at that time). The BLM Herd Area and Forest Service Territory were identified pursuant to the 1971 Act as areas occupied by wild horses at the time of the passage of the Act.

Comprehensive agency inventories and assessments between 1971 and 1974, and public involvement provided the basis for expanding the 1968/1969 range to the present day Herd Area and Territory boundaries per the 1971 Act. The joint Forest Service and BLM decision reached in the 1974 *Pryor Mountain Complex Land Use Decisions*, allowed horse use (beyond the 1968/1969 range) in Lost Water Canyon area (Forest Plan Management Area Q), the Mystic

Allotment area, Lower Crooked Creek and Upper Crooked Creek (BLM) per the 1971 Act. Subsequent land use planning efforts in 1984 (BLM) and 1987 (USFS) validated the same wild horse herd management area and territory as being designated land uses. These land use planning efforts again included public involvement. Adjustment to the range occurred in 1984 with the temporary inclusion of the Sorenson Extension, (using two five year special use permits) from the BCNRA, and the Mystic (Kruger) Allotment and land lease. In 1990 the last adjustment occurred when the Sorenson Extension was not re-authorized by BCNRA and resulted in present boundary encompassing over 38,000 acres of lands.

Until 1976, the 1971 Act provided protection but no authority for appropriations for the management of wild horses. The Federal Land Policy and Management Act (FLPMA) of 1976 (also known as BLM's organic act) amended the Act. This approved appropriations for the management of wild horses, allowed the use of motorized equipment in the management of wild horses and burros and directed the BLM to maintain an inventory of wild horses. Section 603 of FLPMA directed the Secretary of the Interior to review areas of 5,000 acres or more of the public lands determined to have wilderness characteristics and to report to the president his recommendations as to the suitability of each such area for preservation as wilderness. FLPMA not only changed the direction wild horses were to be managed but changed the mission of the BLM as an agency.

The 1971 Wild and Free-Roaming Horse and Burro Act was amended in 1978 through the Public Range Improvement Act, by allowing the Secretary to place excess wild horses into private ownership or adopt these animals to the citizenry of the United States in order to improve the condition of the public lands through wild horse removals where AMLs have been established.

In 1991 the Wilderness Study Areas (WSA) Record of Decision was issued by the Secretary of the Interior. This document finalized the WSA recommendations to Congress. This document adjusted the original recommendations for the Pryor Mountain WSA by recommending 12,575 acres and adjusting boundaries and the Bighorn Tack-on WSA by recommending 2,470 acres and adjusting the boundary. The Burnt Timber WSA did not change.

In 1998 the Final Wilderness Environmental Impact Statement for the Billings Resource Area was issued. Three wilderness study areas (WSA) were recommended within and adjacent to the PMWHR. These WSAs are the Pryor Mountain consisting of 16,927 acres of land, the Burnt Timber canyon consisting of 3,430 acres of land and the Bighorn Tack-on consisting of 2,550 acres of land. These lands were to be managed for non-impairment of wilderness values as not to impair the possibility of congress designating the area as wilderness as identified under FLPMA.

Due to these laws and subsequent court decisions, integrated wild horse management and removals have occurred periodically within the PMWHR. Wild horses have been removed when over-populated and horse health and rangeland health has reached a point where a gather was justified to return the range to a thriving natural ecological balance. Since the establishment of the PMWHR 608 wild horses have been removed to improve range condition.

## **Past Distribution Shifts**

For a variety of reasons, wild horse distribution has shifted over time where areas outside of the PMWHR are being used. The area outside of the PMWHR is near Dryhead Overlook and Tony Island, with some incursion onto the adjacent Crooked Creek cattle allotment, Dryhead Overlook traditional cultural property, Lost Water recommended wilderness, and Lost Water research natural area. Horse use in this “unauthorized” area has grown substantially in the past 15 years from about 5 - 8 head to about 40 head, and occasionally substantially higher numbers.

This shift in distribution corresponds with the 1980’s BLM hazing of horses to the upper elevations and the 1990 National Park Service removal of the Sorenson Ranch Extension from use by the herd. Horses that once were associated with the yearlong low elevation range of the "Dryhead Unit" (located within the Bighorn Canyon NRA), including the Sorenson Extension, have been moving westward into the lands which tend to be used as seasonal ranges from lower elevation to higher elevation. Higher forage quality is also a factor contributing to horse distribution shifts due to poorer rangeland conditions within the PMWHR.

A change in distribution pattern has occurred where there is moderate to high use in the subalpine meadows and minimal use throughout the mid slopes which were at one time receiving the heavier use prior to the hazing of horses into the upper elevations of the range and mid-slope water sources being shut-down (guzzlers) or obliterated (mining-related water sources).

All of these factors have created more bands moving seasonally up to the mountain summer range of the Forest Service and BLM and in turn creating more pressure on the north boundary fence and those higher elevation rangelands. In addition, poor fence condition and location does not provide an effective barrier to the increased pressure and wild horses are entering unauthorized rangelands outside the PMWHR consisting of a proposed wilderness area, a research natural area, tribal religious area, and an adjacent cattle allotment. Management of wild horses is not to occur outside of the PMWHR per public land law, regulations, policy, and land use plans.

## **Present Actions**

Past actions regarding the management of wild horses within the PMWHR has resulted in the current wild horse population being considered in this EA. Wild horse management has contributed to the present resource condition and wild horse herd structure and distribution. Cumulatively, under all of the alternatives, the PMWHR would be primarily administered for the protection and management of wild horses, thriving ecological condition, wildlife, watershed, recreation, cultural, and scenic values.

The PMWHR is managed for primarily for wild horses, archeological, recreation, wildlife and scenic values.

There is an estimated population of 170 wild horses, with 40 horses residing outside the range. Resource damage is occurring in the high and low elevation areas of the PMWHR and wild

horses are moving from the PMWHR to outside the area due in part to excess animals and in part to missing yearlong habitat components necessary to sustain a population of 170 animals.

Current mandates prohibit the destruction of healthy animals that are removed or deemed to be excess. Currently, only sick, lame, or dangerous animals can be euthanized, and destruction is no longer used as a population control method. Wild horses over the age of ten years old or an animal unsuccessfully offered for adoption three times are to be sold without limitation and instantly titled. If not sold these animals are sent to long term holding.

Demands for recreational opportunities within the Pryor Mountains continue to increase. More people than ever are visiting the PMWHR not only for easy wild horse viewing opportunities but to enjoy other recreational opportunities as well. Motorized use is continually increasing, along with camping, hunting (especially bear hunting), hiking, sight-seeing, amateur botany, as well as just the experience of visiting open country.

Non-impairment of Wilderness Study Areas due to management activities is currently ongoing along with monitoring of roads and trails to ensure this is achieved.

A hand off the land approach to vegetation management is the primary management tool in the area due to the presence of WSAs, ACEC, and the Crooked Creek Natural Area.

### **Reasonably Foreseeable Future Actions**

The BLM would manage wild horses within a population range for future established AMLs, while maintaining genetic diversity, age structure, and sex ratios. Natural selection may not be the preferred method for managing wild horses in the future. Wild horse AML would most likely be expressed as a range in the future as a result balancing a population with its environment. Wild horses would continue to be a component of the Pryor Mountains managed within the wild horse range.

It is not anticipation that there would be amendments to the Act that would change the way wild horses could be managed on the public lands. If changes in the Act that relate to the disposal of excess wild horses or sanctuaries outside of the United States are authorized, gathers and removals should become more predictable due to availability of funding. Fertility control should also become more readily available as a management tool, with treatments that last between gather cycles, reducing the need to remove as many wild horses. If there are no future amendments to the Act, and no changes in funding levels for the wild horse program, then few changes in on-the-ground management would occur.

It is not anticipation that a lands bill would be sponsored through congress designating wilderness or releasing wilderness study areas. Management for non-impairment is expected to continue with few if any changes with some use of prescribed fire in the timbered areas.

Travel management and recreation management are high priorities for the area. Controlled access and management of use of the PMWHR can be expected to occur. As more people

discover the Pryor Mountains more impacts escalate and traditional uses of the area need closer management in order to preserve the area for future generations.

**Table 5 - Cumulative Effects**

Past	Present	Reasonably Foreseeable
Wild horse grazing within cumulative impact analysis area at varied locations over time.	Wild horse grazing limited to the PMWHR and a few adjacent areas within the cumulative impact analysis area	Wild horse grazing within the PMWHR. No wild horse grazing outside of the PMWHR
Permitted Livestock Grazing (within cumulative impact analysis area at varied locations over time).	No permitted livestock grazing within the PMWHR with the exception of a BCNRA trailing permit. Livestock grazing on adjacent lands ongoing.	No permitted livestock grazing within the PMWHR with the exception of a BCNRA trailing permit. Livestock grazing on adjacent lands ongoing.
Dispersed recreation within cumulative impact analysis area. Developed recreation (USFS Big Ice Cave and Sage Creek Campground; BCNRA developed sites)	Dispersed recreation within cumulative impact analysis area. Developed recreation (Outside of PMWHR - USFS Big Ice Cave and Sage Creek Campground; Within and out of PMWHR - BCNRA developed sites)	Dispersed recreation within cumulative impact analysis area ongoing. Developed recreation ongoing (Outside of PMWHR - USFS Big Ice Cave and Sage Creek Campground; Within and out of PMWHR - BCNRA developed sites)
Uranium mining exploration within cumulative impact analysis area	No mining or exploration within cumulative impact analysis area	No mining or exploration within cumulative impact analysis area
Deer and Bighorn sheep have historically occupied areas within and adjacent to the PMWHR.	Deer and Bighorn sheep presently occupy areas within and adjacent to the PMWHR.	Red Pryor Bighorn sheep transplant (Outside of PMWHR – BLM)
Post and Pole Cutting (USFS adjacent to PMWHR).	No Post and Pole Cutting within the PMWHR occurring. Post and Pole cutting on USFS outside of PMWHR.	Post and Pole Cutting within and adjacent to the PMWHR ongoing.
Timber Management (USFS)	No Timber Management within PMWHR occurring. Timber management on USFS outside of PMWHR	Timber Management within PMWHR possible in the future, but not reasonably foreseeable. Timber management on USFS outside of PMWHR ongoing.
Prescribed Fire / Fuels Management Applications (USFS)	No Prescribed Fire / Fuels Management Applications within PMWHR. Prescribed Fire / Fuels Management on USFS outside of PMWHR.	Prescribed Fire / Fuels Management Applications within PMWHR possible in the future, but not reasonably foreseeable. Prescribed Fire / Fuels Management Applications on USFS outside of PMWHR ongoing.
1974 Joint BLM/USFS resource plan within the BLM and USFS portions of the cumulative impact analysis area.	Activities for the management of the Pryor Mountains are governed by the Billings RMP, Forest	Revision of Custer National Forest is pending, but not reasonably foreseeable and revision of the Billings Resource Area Resource Management Plan is in the beginning stages for revision.

### **3.4 Affected Resources Brought Forward for Analysis**

#### **3.4.1 Wild Horses**

##### **3.4.1.1 Affected Environment**

The origin of the wild horses within the PMWHR is not entirely known. There is much supposition as to their origin. Many claim the horses are descendents of animals the Crow Indians obtained from the Spanish or other tribes in contact with the Spanish. The Crow Indians were known to have by the 1700s and to inhabit the Pryor Mountains before European settlement. Others claim the horses have been there forever. The trapper William Hamilton explored the Pryor Mountains in 1848 and did not describe the presence of wild horses. By the early 1900s wild horses within the Bighorn basin were well documented. Most likely the wild free-roaming horses inhabiting the PMWHR are descendents of numerous founding stocks. The most recent genetic tests conducted by Dr. Gus Cothran concluded the Pryor horses are descendents of New World “Spanish” breeds (saddle type horses) and related to European “Spanish” breeds. Some of the Pryor horses carry a rare allele variant Qac that is traced back to original New World “Spanish” type horses that were developed from the original Spanish and Portuguese (Iberian) horses that were brought to the Americas, conversely these horses carry no genetic markers other horse breeds don’t have.



**Photo 11 - Pryor Mountain Wild Horse**



### 3.4.1.2 Impacts

#### Assumptions for Analysis

The analysis also assumes the lifespan of the HMAP or proposed action is for 5-10 years, and no legislation would occur that would affect the on the ground management of the PMWHR. Wild horses would be aggressively hazed back to the wild horse range under alternatives A and B by the BLM regardless of agency jurisdiction. The population model (Appendix 2) is for illustration purposes and alternative comparison and may not necessarily reflect actual growth rates or outcomes of management actions.

#### Alternative A – No Action

The existing Herd Management Area Plan as amended would be fully implemented. Wild Horses would be managed for the current appropriate management level AML of 85-105 wild horses. The population would be managed for the various colors and animals selected for retention based upon better conformation so as to gradually improve the quality of horses. The population would be managed through removal of young horses and the sex ratio would be managed from 50% to 62% male to female. Every horse from 1 to 5 years old would be removed in order to maintain the AML. The population model indicates the average population would be 134 wild horses with a growth rate of less than 1%. Since horses are a long lived species, over a ten year period the population could stay at this level with a portion or all young removed depending on foal crops.

Under this alternative range/forestry/habitat enhancement would not occur. Noxious weeds would continue to be treated, current water developments would be maintained, and the north boundary fence would be rebuilt where it currently is located. Fencing would not be effective and use outside of the PMWHR would likely continue, and agencies would not be conforming to public land laws, regulations, policy, and land use plans. Wild horses would be hazed immediately upon detection back to the wild horse range by the BLM regardless of agency jurisdictions.

#### Alternative B – Proposed Action

The proposed action is to manage wild horses in order to preserve and maintain a thriving natural ecological balance and multiple use relationships, through the implementation of the proposed Herd Management Area Plan. **This action would include increasing the appropriate management level from 85-105 wild horses to a population range of 90-120 wild horses (excluding the current years foal crop).** The population would be managed for a phenotype animal reminiscent of a “Colonial Spanish Mustang” as described by Sponenberg. The population would be managed in a manner designed to preserve genetic traits, blood lines and ensure maximum genetic variation within a small population while managing for healthy rangelands. The wild horses would be managed for an even sex ratio as well as age classes. Emphasis would be placed on retention and increasing the number of 5-10 year old animals and making these animals the core breeders instead of the 11-16 year old animals. The alternative should result in a higher level of genetic exchange and variation than the No Action and Current Situation Alternatives.



Conflicts between stallions competing for mares could increase as well as injuries due to fighting. Bands (harems) would be expected to be smaller than present with a shift in the social structure of the individual bands. The population model indicates the average herd size would be 119 wild horses and the growth rate would be negative 0.2 % or no population growth during the life of the plan in essence the foal crop equals the death loss.

The proposed action would involve development of additional waters, riparian protection and enhancement, fuels reductions, integrated noxious weed treatment, range improvement, wildlife habitat enhancement, specific protections of sensitive plants, enhanced livestock trailing management, and reconstruction, extension and placement of the north boundary fence. This alternative would result in more available forage and stop range deterioration and stabilize the ecological condition of the range. Wild horses would be healthier than present and the forage base would be ensured for the long term.

### **Alternative C – Continuation of Existing Management**

The current situation alternative consists of managing the Pryor Mountain Wild Horse Range and areas adjacent to the PMWHR in its current state. Under this alternative wild horse numbers wouldn't necessarily be tied to the appropriate management level or confined to the wild horse range. Remote darting of wild horses with Porca Zona Pellucida would remain the primary means of population management for an undetermined population objective. Wild horses selected for removal and retention would be based upon "political" status. Wild horses that are well known or favorites of groups or individuals (especially stallions) would be retained regardless of genetic contribution or overall health of the herd. Other stallions that directly compete with these "favorite" animals would continue to be removed. Bands (harems) of the "favorites" would continue to be artificially enhanced with abnormally large bands (harems) through a lack of competition due to removal of competing stallions. Mares would be retained regardless of how many progeny they have successfully produced or level of genetic representation on the range.

Although the population is managed at a higher level overall, the genetic diversity is reduced and would continue to be reduced since the majority of the breeding is being conducted by fewer stallions and the average age of the mares continues to rise. Under this alternative the age classes of 5-10 years old which is the core breeding group and ensures "genetic variation" of a healthy wild horse herd, would continue to be the smallest age class until finally nearly eliminated as fewer young animals are left to replace this group. This alternative was not modeled as management practices have varied too extensively to model.

No new range improvement projects would be implemented. Effective fencing would not be done, use outside of the PMWHR would likely continue, and agencies would not be conforming to public land laws, regulations, policy, and land use plans. Range conditions would continue to deteriorate and the forage base and ecological condition would continue to be reduced, thus reducing the health of the animals as well. More and more wild horses would be placed at risk of complete removal as they continue to leave the wild horse range as forage conditions are fair to poor for their sustainability. The carrying capacity of the range would continue to provide for

fewer animals. The PMWHR would continue to be at risk for catastrophic wildland fire placing the herd at risk as well. Effective fencing would not be done, wild horse use outside the range would continue and agencies would not be conforming to laws, regulations and policies for the management of wild free-roaming horses.

### **Cumulative**

Under Alternative A, wild horses would be managed within the capacity of the habitat except areas with limited water sources would continue to experience impacts and some continued deterioration. Wild horse use outside of the PMWHR would likely continue but not to the extent that it currently does. Conflict with public land laws, regulations, policy, land use plans and permitted livestock users would continue to some degree since effective fencing would not be done. Wild horse demographics and overall health to the herd would be at a greater risk since in essence a gate cut gather of all younger horses would need to occur to achieve AML and manage within the current 1984 HMAP and 1992 revision.

Alternative B would manage for a thriving natural ecological balance while maximizing genetic exchange, shifting demographics to a healthier herd and minimizing wild horse management actions to a three to four year cycle. A more effective north boundary barrier would minimize conflicts with public land laws, regulations, policy, land use plans, other users and potentially reducing wild horse viewing near Dryhead Overlook TCP, thereby lessening visitor conflicts with traditional uses by tribes

Under Alternative C, wild horses would continue to exceed the capacity of their habitat. The population would be at a greater risk of “bottlenecking” due to fewer males breeding more mares. The population would be at a greater risk of the effects of an environmental stochastic event as forage conditions continue to deteriorate. Wild horse use outside of the PMWHR would likely continue. Under Alternatives A and C, unauthorized use outside of the PMWHR would likely continue and conflict with forage availability for permitted livestock grazing use on the Crooked Creek Allotment since effective fencing would not be done. Alternative B would create a more effective north boundary barrier and substantially minimize conflicts with available forage for permitted livestock, and wild horse viewing visitation would likely increase. Increased visitation has potential to conflict with traditional tribal uses of the Dryhead Overlook Traditional Cultural Property (TCP).

## **3.4.2 Standards for Rangeland Health/Vegetation/Soils**

### **3.4.2.1 Affected Environment**

The PMWHR is located in the southeastern portion of Carbon County, Montana, and northern Big Horn County, Wyoming. The area is high in diversity and complex in nature. Elevations range from 3,850 feet to 8,750 feet above sea level. Annual precipitation varies with elevation with six inches of precipitation in the lower elevations to upwards of twenty inches in the alpine high elevation. Plant communities also vary with elevation and precipitation from cold desert shrub to sub-alpine forests and meadows. Soils vary in depth from shallow (less than ten inches)

to 20-40 inches deep depending on site locations and position on the landscape. Water is limited as there are five perennial water sources within the PMWHR.

The PMWHR is within two Major Land Resource Areas (MLRA) MLRA 32 Northern Intermountain Desertic Basins and MLRA 43A Northern Rocky Mountains (Natural Resource Conservation Service, 2006). The average annual precipitation in most parts of the basins is 6 to 12 inches. It is as high as 22 inches in the higher elevation areas within the basins. The maximum precipitation from frontal storms occurs in spring and fall. The surrounding mountain ranges block many of the regional precipitation events. The average annual temperature is 39 to 48 degrees F. The temperature can vary widely within short periods because of drainage of cooler mountain air into the basins. The freeze-free period averages 145 days and ranges from 110 to 180 days.

This area supports shrub-grass vegetation. Big sagebrush, Gardner's saltbush, rhizomatous wheatgrasses, Indian ricegrass, and needle and thread are the dominant species. Black sage, Gardner's saltbush, and bluebunch wheatgrass are common on shallow soils in the uplands.

This area is also in the northern part of the Northern Rocky Mountains. Douglas-fir, lodgepole pine, subalpine fir, and limber pine, and juniper are the dominant overstory species, depending on precipitation, temperature, elevation, and landform aspect. The understory vegetation varies, also depending on climatic and landform factors.

Large areas of the PMWHR are experiencing a downward trend in ecological condition due to excessive numbers of wild horses beyond the capacity of the habitat to sustain the numbers beyond the AML in balance with available resources that ensures healthy rangelands. The PMWHR Evaluation documented this measured trend primarily in the low elevation desert areas of the wild horse range. Also the mountain meadows are in poor ecological condition with an inverse proportion of succulents to grasses. Drought coupled with a wild horse population above the AML magnified the range deterioration. Conversely, areas within the wild horse range that have very little water and received very little use increased in ecological condition during this same timeframe.



**Photo 12 - Turkey Flat Early Seral Ecological Condition with Heavy Utilization**



**Photo 13 - Penn's Meadow in Early Seral Ecological Condition with Heavy Utilization**

### **3.4.2.2 Impacts**

#### **Assumptions for Analysis**

The analysis also assumes the lifespan of the HMAP is being developed for 5-10 years, and no major legislation would occur that would affect on the ground management of the PMWHR. The analysis assumes no major shift in climate outside of average variances would occur during the lifespan of the plan altering vegetation communities.

## **Alternative A – No Action**

Under this alternative ecological condition would stabilize in the low elevation desert areas as well as the high elevation mountain meadows. The mid-elevation would be expected to stay relatively the same with perhaps a continued upward trend of ecological condition. Forested areas would continue to deteriorate and fuels buildup would continue to be excessive for the site. The risk of high intensity wildland fire that would change the vegetation composition would be expected to occur.

Soils within range sites would be expected to stabilize after vegetation has stabilized itself with the wild horses managed at 85-105. Rill erosion, wind erosion, and duning would be expected to decrease as well. Soils within forested areas would continue to experience rill erosion as the present state would not change with little understory to hold top soil in place. Soil loss would be at a greater risk through the continued risk of catastrophic wildland fire.

Standards for rangeland health would be expected to be partially met under this alternative.

## **Alternative B – Proposed Action**

Under this alternative ecological condition would stabilize in the low elevation desert areas as well as the high elevation mountain meadows. The mid-elevation would be expected to stay relatively the same with perhaps a continued upward trend of ecological condition. Forested areas would slowly recover as fuels buildup would be treated to reduce excessive fuel loads. The risk of high intensity wildland fire and shifting the vegetation composition from decadent stands of timber to invasive weeds (cheatgrass, mustards) would not be expected to occur if management action could occur quickly. Hazardous fuels reductions would add resiliency to the ecosystem and forested areas.

Soils within range sites would be expected to stabilize after vegetation has stabilized itself with the wild horses managed within a population range from 90-120 wild horses if low AML is achieved and the population is allowed to slowly increase to the high AML. Rill erosion, wind erosion, and duning would be expected to decrease. Soils within forested areas would continue to experience rill erosion but to a lesser extent until fuel reductions and fire are brought back to the ecosystem. The development of an understory to hold top soil in place would be expected. Soil loss would be at a greater risk through the continued risk of catastrophic wildland fire if corrective action could not be taken quickly.

Under the proposed action, making significant progress toward meeting standards for rangeland health has the greatest potential. Management actions are focused on treatment areas that are in poor to fair ecological condition while promoting the even use of areas that are more resilient and in better condition.





**Photo 14 - Key Area C-21 on Sykes Ridge mid-slope in upward trend and Mid Seral Ecological Condition**

### **Alternative C – Continuation of Existing Management**



**Photo 15 - Severe utilization in March of 2008**

Under this alternative ecological condition would continue to deteriorate in the low elevation desert areas as well as the high elevation mountain meadows. The mid-elevation would be expected to stay relatively the same with perhaps with a continued upward trend of ecological condition. Forested areas would continue to deteriorate and fuels buildup would continue to be

excessive for the site. High intensity wildland fire changing the vegetation composition outside the management capability of the agencies would be expected to occur.

Soil loss within ecological sites would be expected to continue to since vegetation would not stabilize itself with the wild horses managed at levels beyond the capacity of the habitat. Rill erosion, wind erosion, and duning would be expected to increase as well. Soils within forested areas would continue to experience rill erosion as the present state would not change with little understory to hold top soil in place. Soil loss would be at a greater risk through the continued risk of severe wildland fire.

## **Cumulative**

In general, livestock grazing occurred in the past in portions of the PMWHR up until the early 1960s. Historic overgrazing in these areas contributed to rangeland conditions presently found. Permitted livestock grazing is not authorized or planned in the PMWHR, outside of livestock trailing through Bad Pass to access rangelands outside of the PMWHR. In adjacent areas to the PMWHR, permitted livestock grazing are likely to continue to occur, but not likely to contribute to cumulative impacts to ecological conditions since recent stocking rate reductions were implemented.

Implementation of the Proposed Action or Alternative B would reduce the existing wild horse population to AML, and this would help promote a thriving natural ecological balance. The achievement and maintenance of AML would maintain or increase in vegetation density, vigor, reproduction, productivity, diversity, and forage availability as well as meet standards for rangeland health. Maintenance of AML would sustain animal populations in a thriving natural ecological balance and would contribute to retain ecological sites condition.

Present ecological conditions within the PMWHR, in combination with actions under Alternatives A and B, would stabilize and not have cumulative impacts. However, ecological condition on portions of the PMWHR would not likely improve due to past overgrazing history in portions of the PMWHR. Alternative C would likely produce cumulative impacts to existing poor condition rangelands by not controlling the numbers of wild horses.

Alternatives A and B would address ecological condition and appropriate management levels within the PMWHR, but only Alternative B would address risks to ecological conditions in the “unauthorized” areas outside of the PMWHR. Under Alternatives A and C, unauthorized horse use would likely occur on adjacent lands outside the PMWHR and in time would likely compromise the ecological conditions of those lands and associated Forest Service Lost Water recommended wilderness and Lost Water Canyon Research Natural Area ecological values.

Implementation of Alternative B would result in disturbance of small quantities of native vegetation and soils immediately in and around water developments, cattleguards, and fencing. Impacts created by vehicle traffic during project implementation, and hoof action of horses near water developments and fences, can be severe in the immediate vicinity of these facilities. Since most water developments receive recurring wild horse use, any impacts would remain site

specific and isolated in nature. Based on past experience these impacts are inconspicuous within several years.

Under Alternatives A and B the removal of animals and the subsequent maintenance of AML would allow reduced utilization of riparian and upland habitats on a year-long basis. This management would result in improved rangeland health.

Under Alternative C, cumulative impact of large numbers of wild horses exceeding the carrying capacity of the PMWHR would continue. These impacts would affect all of the resources that depend on stable soils and intact vegetative communities, including wildlife viewing and hunting, wilderness, cultural resources, water quality, and . The HMAP objectives and Rangeland Health Standards cannot be met under Alternative C.

Uranium development occurred across this area in the past, but is not presently occurring nor is reasonably foreseeable into the future. The surface disturbance to vegetation and soils of these past actions have been reclaimed and in combination with proposed vegetation and soil disturbance in any Alternative would not likely produce cumulative impacts.

Cumulative effects to surface water resources could result from increases in the amount of impervious surfaces that in turn could alter the amount and quality of drainage to area creeks and other water features. However, because the proposed projects are sufficiently distant from each other and are located in different tributary watersheds, there would not be combined effects from multiple projects on the same stream. The minor, localized effects of each project would occur within the drainages of minor tributaries to Crooked Creek and the Bighorn River and at a distance of at least several miles upstream from either river.

Under Alternative B, cultural, forage, fire management, special designations, special status species, travel, visual resource, wild horses, wildlife, fire / fuels, and forestry decisions would cause beneficial or minimal cumulative effects to soil and water resources from all alternatives as compared to Alternatives A and C.

The Billings Field Office would continue to identify any adverse impacts as they occur, and mitigate them as needed on a project specific basis to maintain habitat and herd quality. The Proposed Action would contribute to the cumulative impacts of future actions by maintaining the herd at AML, and establishing a process whereby biological and/or genetic issues associated with herd or habitat fragmentation would become apparent sooner and mitigating measures implemented more quickly.

### **3.4.3 Noxious and Invasive Plants**

#### **3.4.3.1 Affected Environment**

The affected environment is the same as Standards for Rangeland Health, Vegetation and Soils.



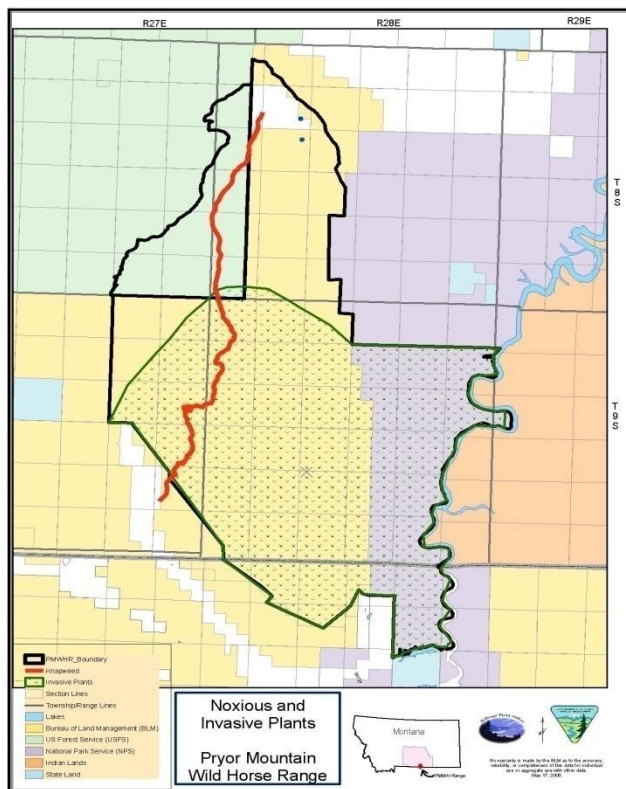


**Photo 16 - Big Coulee cheatgrass understory**



**Photo 17 - Cottonwood Spring Tamarisk**

### **Map 9 - Approximate Distributions of Noxious and Invasive Plants**



### **3.4.3.2 Impacts**

#### **Assumptions for Analysis**

Noxious plants would be treated regardless of alternative or management situation on the PMWHR.

### **Alternative A – No Action**

Under this alternative ecological condition would stabilize in the low elevation desert areas as well as the high elevation mountain meadows. The mid-elevation would be expected to stay relatively the same with perhaps a continued upward trend of ecological condition. All Noxious plants would be treated regardless. Invasive species such as cheatgrass, halogeton, mustards, etc. would be confined to the extent those species are found currently. Forested areas would be at risk of large scale noxious and invasive species establishing due to the risk of high intensity wildland fire.

### **Alternative B – Proposed Action**

Under this alternative ecological condition would stabilize in the low elevation desert areas as well as the high elevation mountain meadows. The mid-elevation would be expected to stay relatively the same with perhaps with a continued upward trend of ecological condition. All noxious plants would be treated. Invasive species such as cheatgrass, halogeton, mustards, etc. would be confined to the extent those species are found currently. Forested areas would be less likely to be invaded by noxious and invasive plants with treatments to reduce excessive fuel loads for the site. The risk of high intensity wildland fire and changing the vegetation composition outside the management of the agencies would not be expected to occur if management action could occur quickly. Prescribed fire would add resiliency to the ecosystem and forested areas precluding establishment of invasive and large scale noxious plants following a severe wildland fire.

### **Alternative C – Continuation of Existing Management**

Under this alternative ecological condition would continue to deteriorate in the low elevation desert areas as well as the high elevation mountain meadows. The mid-elevation would be expected to stay relatively the same with perhaps with a continued upward trend of ecological condition. All noxious weeds would be treated. Invasive species such as cheatgrass, halogeton, mustards, etc. would expand into more areas beyond where currently found. Forested areas would be at risk of large scale noxious and invasive species establishing due to the risk of high intensity wildland fire.

### **Cumulative**

Cumulative impacts under Noxious and Invasive are the same as under Standards for Rangeland Health, Vegetation and Soils.

### **3.4.4 Cultural**

#### **3.4.4.1 Affected Environment**

The Pryor Mountains contain a rich prehistoric and historic archaeological record. The prehistoric archaeological types of sites located in the Pryor Mountains include, but are not limited to: quarry sites, rock art sites, rockshelter/cave sites, vision quest sites, lithic scatters,

rock cairns/rock alignments, tipi rings, drive sites, wooden structure habitation sites, occupation sites, and hunting related sites. The historic archaeological types of sites located in the Pryor Mountains include, but are not limited to: rail lines, lime kilns, ranching related sites, wooden structure habitation sites (cabins), historic trails, horse traps, homesteads, etc. Traditional Cultural Properties (TCP) is found throughout the area. The Dryhead Overlook and Sykes Ridge are the primary areas for TCP within the affected environment. These areas have been used for generations by Crow tribal members for traditional uses, ceremonies and vision quest sites.

Direct impacts that could occur where wild horses concentrate include trampling, chiseling, and churning of site soils, cultural features, and artifacts; artifact breakage; and impacts from standing, leaning, and rubbing against above ground features, structures, and rock art. Indirect impacts could include soil erosion, gulying, and increased potential for unlawful collection and vandalism. In areas where cultural site presence coincides with areas of wild horse concentration, continued grazing could contribute to substantial ground disturbance and cause cumulative, long term irreversible adverse effects to Historic Properties

#### **3.4.4.2 Environmental Impacts**

##### **Alternative A – No Action**

There would be no impacts to cultural resources due to project implementation as no projects would occur within the PMWHR. However, the direct and indirect impacts to cultural resources described above could occur. Under this alternative, there is a higher risk of catastrophic wildland fire, which could adversely impact cultural resources.

##### **Alternative B – Proposed Action**

There would be no impacts to cultural resources as cultural inventories would occur prior to implementation of any proposed surface disturbing project related to the PMWHR HMAP and EA. If cultural resources are located during an inventory, avoidance of the site(s) is preferred. If the cultural resources cannot be avoided then the site(s) would be mitigated. Under Alternative B, the direct and indirect impacts described above would be lessened (more dispersed) as the proposed projects would disperse wild horse use over the PMWHR.

##### **Alternative C – Continuation of Existing Management**

There would be no impacts to cultural resources due to project implementation as no projects would occur within the PRWHR. However the direct and indirect impacts to cultural resources described above could occur. Under this alternative, there is a higher risk of catastrophic wildland fire, which could adversely impact cultural resources.

##### **Cumulative**

The proposed projects would result in ground disturbance that could potentially impact identified and unidentified prehistoric and/or historic sites, as well as cause impacts on traditional cultural properties. Cultural resource surveys of project areas will have surveys conducted and no direct impacts to cultural resource sites are anticipated.

Resource decisions from this assessment could combine with other past, present, and reasonably foreseeable actions to produce cumulative impacts to cultural resources and resources of religious or traditional importance to Native American tribes associated with the area.

Reasonably foreseeable planning projects in the region include the Billings Field Office BLM RMP and the Custer National Forest Management Plan. Resource decisions, would likely result in few cumulative effects to cultural resources within the project area as cultural resources are stationary entities. Planning decisions related to the Billings Field Office and the Custer National Forest are also subject to federal cultural resource laws and application of the Section 106 process of the NHPA. Further, general planning decisions of these two entities in relation to land uses and management that has the potential to impact cultural resources on adjacent lands within the project area (i.e., fire fuels reduction, erosion reduction through effective vegetation management, etc.) would generally have a positive effect on cultural resources within the project area.

Many decisions related to visual resource management, special designations, and design criteria on surface disturbance have the potential to provide a net positive benefit to cultural resources within the project area. These decisions would reduce or control the frequency and extent of ground disturbing activities that present the greatest threat to maintaining the use values of cultural resources. In general, all recreation decisions under all alternatives have the potential to increase or at least maintain current levels of adverse impacts to cultural resources. Decisions for recreation generally increase or maintain current levels of surface and subsurface disturbance and have as an indirect effect an increase in human activity within those areas of recreational use. Increased human activity tends to equate with increased adverse impacts to cultural resources.

In general, implementation of the array of resource decisions under Alternative B would have the lowest degree of potential negative impact on cultural resources within the project area, and in many cases Alternative B has the highest overall benefit for cultural resources. Overall, fewer acres of land would be open for ground disturbing activities under this alternative than under any other alternative. Although no direct correlation exists between acres of surface disturbance and numbers of cultural resources impact, this general trend holds true. By comparison, Alternative A and Alternative C have the potential for roughly comparable levels of potential adverse impact to cultural resources. Decisions under Alternative C have the greatest potential for adverse impacts.

Under all alternatives, specific undertakings that could result in surface disturbance and have the potential to impact cultural resources are subject to the Section 106 process of the NHPA which calls for the identification of historic properties (i.e., National Register listed sites or sites determined eligible for listing on the National Register) within the area of potential effects and the consideration of alternatives to the planned undertaking that could avoid impacts to said properties. In the event that avoidance is not possible, mitigation of the impacts is to be considered.

### **3.4.5 Recreation**

#### **3.4.5.1 Affected Environment**

Recreation related visitation has been increasing in the Pryor Mountains over the last several years and that trend is expected to continue. The area is composed of the Custer National Forest BLM and NPS lands. Visitor logs maintained at Penn's Cabin, located on the top of East Pryor Mountain, indicate an increase in visitor use especially in the past 5 years. The logs also show an increase in both foreign and domestic visitors. Wild horses can often be seen near the cabin in the summer through early fall.

Recreation opportunities are primarily wild horse viewing during the warmer months of the year, especially during foaling season. Other opportunities include but are not limited to bear, deer and small game hunting, hiking, and snowmobiling. Motorized use is limited to designated roads. The area is largely managed for dispersed recreation. Hiking opportunities in the Pryor Mountains are excellent. However, there are no maintained trails for hiking or off highway vehicle use. Other uses include camping, horseback riding, photography, sightseeing and wildlife viewing. There are several caves, some of which are large enough to explore

Special recreation permits are becoming more prevalent as more people wish to pay for the opportunity to participate in guided or organized activities on public lands. Wild horse photography tours, viewing tours and cattle drives are the primary recreation permitted activities occurring. These activities provide a gateway for future visitation by an ever growing segment of the public.

#### **3.4.5.2 Impacts**

##### **Assumptions for Analysis**

The analysis assumes that the demand for the types of recreation opportunities available in the Pryor Mountain complex will continue to increase.

##### **Alternative A – No Action**

Opportunities to view and photograph wild horses would be affected as more wild horses would be confined to the range. Fewer wild horses would be off the range and when they do stray they would be quickly hazed back. Opportunities from other recreation activities are expected to stay the same.

##### **Alternative B – Proposed Action**

Under this alternative visitors could have more opportunities to view the horses in more areas of the PMWHR. Additional guzzler installations could alter herd movements, which could result in more frequent viewing in remote areas. Fewer horses would be expected to be seen as easily along the primary access roads as use patterns shift and wild horses are maintained at a level of 90-120 animals. Other recreational activities shouldn't be affected.

## **Alternative C – Continuation of Existing Management**

There would be no impacts to recreation under this alternative. Opportunities to view the horse herd and conduct other recreation would remain the same.

### **Cumulative**

Past and present wild horse distribution influences wild horse viewing under Alternatives A and C. These alternatives would have a similar wild horse distribution pattern of where wild horse viewing within and outside of the PMWHR. Alternative B would have an effect on recreational viewing of wild horses due to a different distribution pattern of where wild horses are expected to occur as wild horses would be confined to the PMWHR and viewing opportunities of horses near Dryhead Overlook, Tony Island, and Commissary Ridge would not be available.

Cumulative impacts from the implementation of other resource decisions outside of the project area on would be minimal with the exception of OHV decisions. OHV activity could result in impacts to resource values in some areas,

Because recreation use in the project area are adjacent to other areas in the BLM, Forest Service, and National Park Service, plans for recreation (i.e. 2001 Tri-State OHV Plan, and 2008 Beartooth District Travel Management Plan) could have a cumulative impact on the availability of recreational opportunities in the region. OHV management decisions neighboring BLM, Park Service, and National Forests (i.e. the 2006 Gallatin National Forest Travel Management Plan and the 2007 Lewis and Clark Travel Management Plan) could also affect the availability and quality of recreation in the region. Travel Management Plans as well as over-reaching direction in how travel management is conducted through a RMP revision for the BLM Billings Field Office is reasonably foreseeable and could also influence availability and quality of recreation in the area.

### **3.4.6 Wilderness/Visual Resource Management**

#### **3.4.6.1 Affected Environment**

Three BLM areas and one NPS area partially within the wild horse range were recommended for wilderness in August, 1991 and December 1981. The recommendations were made following a wilderness study process that considered resource values, present and projected future uses, public input, manageability as wilderness, environmental consequences of designating or not designating the areas as wilderness, and mineral surveys. As a result, the following Wilderness Study Areas continue to be managed so as not to impair the wilderness values identified in the study: Burnt Timber Canyon WSA, Pryor Mountain WSA Big Horn Tack-On WSA, and Bighorn Canyon National Recreation Area Wilderness Study Area. Wilderness Study Area designation automatically defaults to a Class I visual resource management (VRM) classification. Class one VRM does not allow for management actions that would impair the view shed.

There are 3,430 acres within the Burnt Timber Canyon WSA that were recommended as suitable for wilderness designation. The WSA is bounded by Custer National Forest lands on the north, and it adjoins the Forest Services' 9,520 acre Lost Water Canyon WSA. The area encompasses an extremely rugged and isolated portion of Crooked Creek Canyon, which has remained relatively free of modern human influences. The WSA is predominantly natural and offers outstanding opportunities for solitude and primitive recreation.

Burnt Timber Canyon WSA exhibits unique outstanding geologic and scenic values. The major canyon and rugged side canyons cut through several hundred feet to the Pryor Mountain limestone strata. These deep canyons contain numerous caves, rock overhangs, and natural alcoves that provide ample opportunities for exploration.

Canyon bottoms are deep and profusely vegetated. They are difficult to traverse but offer outstanding opportunities for solitude and isolation. The ridges and canyon rims are open and sparsely vegetated. These ridge tops constitute about 10% of the total WSA area. The ruggedness of the area provides a real challenge to the foot traveler. Dense canyon-bottom vegetation, steep talus slopes, and steep canyon walls make foot traffic difficult. The WSA has outstanding opportunities for photography, rock climbing, nature study, backpacking, spelunking, and hiking.

The major drainage, Crooked Creek, supports a genetically pure strain of native cutthroat trout. The creek is not considered an outstanding fishery as the trout are small and dense brush restricts ready stream access; however, the native trout species have a very high intrinsic value. A fish barrier was installed in the upper reaches of Crooked Creek in the summer of 2007 to protect this species.

All but 430 acres lies within the Pryor Mountain wild Horse Range (PMWHR). The WSA also is inhabited by bighorn sheep, mule deer and black bear; however, big game hunting is quite restricted by topography and dense vegetation.

A portion of the WSA, the Demi-John Flat Archeological District, is noted for its numerous stone rings and rock cairn alignments, the Tillet Petroglyph site, which has been evaluated as having outstanding interpretive potential, and picturesque geologic formations created by the Crooked Creek drainage.

The rough broken topography precludes most uses, and timber harvesting is not allowed by land-use plan decisions. The decision to protect timber in the WSA is primarily due to topography and limited production. The WSA is rated for having low potential for mineral development, and is rated low to moderate for energy resource potential. No development is projected due to low potential and other resource considerations.

The Pryor Mountain WSA, 12,575 acres, includes 4352 acres in Wyoming. This WSA contains some of the most rugged, isolated portions of the Pryor Mountain Range. The wide expanses and topographic screening in this area offer outstanding wilderness values. This unit is in the heart of the PMWHR, and the supplemental attribute of the free-roaming wild horse herd enhance the wilderness characteristics of the area. Human activity is well distributed throughout



the WSA. Vegetation and topographic screening significantly limit any detracting from the WSA's extensive natural setting.

Topographic features are rough, broken and highly varied and provide excellent opportunities for isolation and solitude. Elevation changes rapidly within the WSA, dropping from 8,400 to 3,800 feet in less than 13 miles. The southern aspect provides a vast panorama.

Opportunities for nature photography, rock climbing, hiking, backpacking, nature study, and viewing a variety of multicolored erosional geologic features are outstanding. The WSA contains a wide spectrum of geologic and biotic features, ranging from elements typical of desert environments to those found only in sub-alpine mountainous settings.

Conflicts with other resource uses in the WSA are minimal. Topography severely limits any potential cross country vehicle travel. Commercial timber harvesting in the WSA is not allowed. There is no livestock use authorized in the WSA nor are there any oil and gas leases. The development potential for petroleum resources is rated low to moderate.

The Big Horn Tack-On WSA and Bighorn Canyon National Recreation Management Area WSA is a narrow strip of land averaging 9 miles in length and less than one to two miles in width. It is located between the Sykes Ridge Road on the west and the Bighorn Canyon National Recreation Area powerline access road to the east. On BLM the area is 2,470 acres in size, including 353 acres in Wyoming, on the BCNRA the area is 8,101 acres of which less than half is within the PMWHR.

This WSA is primarily in a natural state with a few dispersed, but fairly well-screened, human intrusions. These consist of Uranium exploration pits, a wild horse trap in the northern along the west boundary road, vehicle ways, one in the north and one in the south, and the power line on the south east.

### **3.4.6.2 Impacts**

#### **Assumptions for Analysis**

The Analysis assumes the wilderness study areas would continue to be partially impaired under alternatives A and C and alternative B would provide for the best opportunity to manage so as not to impair the wilderness values as outlined in section 603 of FLPMA, and the Interim Management Policy for Lands Under Wilderness Review H-8550-1. And the Wilderness Act of 1964. The area would be managed for VRM class I regardless of alternative.

#### **Alternative A – No Action**

Under this alternative no direct management actions would occur within any of the WSAs except noxious weed treatment. There would be no possibility for impairment to wilderness values from projects such as guzzlers, pothole reconstruction, riparian protection, or hazardous fuels reductions through prescribed fire. However, impairment of wilderness values due to over utilization of forage species and poor ecological conditions from wild horse grazing in high

elevation meadows, and low elevation desert areas would occur due to limited watering sources. Otherwise no impacts from wild horse management would be expected to occur in the remainder of the Wild Horse Range.

### **Alternative B – Proposed Action**

Management actions under the proposed action have the greatest potential for non-impairment of wilderness values. Wild horses would be managed in a population range with the population reduced to the low AML and allowed to grow to the high AML then reduced again to low AML prior to resource degradation occurring .

Guzzlers proposed for installation within WSAs is in order to meet management objectives. The specific sites proposed were selected due to the ability to ensure guzzler placement is discrete and not easily discernable as well as the likelihood that wild horses and wildlife would begin using the areas if water is more readily available. Guzzlers would be less than a ¼ acre in size. Guzzlers within WSAs would be constructed with hand tools and the apron would be protected with a buck and rail fence.

The development of these guzzlers would lead to an enhancement of wilderness values and experience as wild horses and bighorn sheep (which are identified as supplemental wilderness values in the Billings Resource Area Wilderness EIS) would benefit from additional water. Wild horses and wildlife would start to utilize areas that are rarely used now. When dispersing use the opportunity to view and see wild horses in the most remote areas of the wild horse range would add to the mystique and romance of the wild horse. Dispersed wild horse use would also result in stabilization and possible recovery of range conditions in the high elevation meadows and low desert areas as wild horses would have more options for water and grazeable areas. Trampling adjacent to the guzzler would be expected as well as horse trails to the guzzler. The guzzler is not designed for yearlong use as the tanks hold 1800 gallons when completely full. A wild horse typically needs approximately 10 gallons of water a day, thus if an average band size is six horses a guzzler should last 30 days once after the dry season starts forcing wild horses to rotate themselves to other areas and providing a good possibility overgrazing would not occur.

In accordance with the *2004 Revision and Clarifications to H-8550-1, Interim Management Policy for Lands Under Wilderness Review*: Guzzlers would be placed in sites that are visually unnoticeable across the landscape topographically and vegetatively screened not only due to site selection but also because the design is made to be unobtrusive. These guzzlers could be easily removed (in less than a day) and top soil stays on site thus no permanent impact. Guzzlers would not be proposed to be placed near other pre-existing facilities limiting the cumulative impact. The design does not require wheeled vehicular use for access or maintenance especially since this is a low maintenance design.



**Photo 18- Guzzler Tanks**

Lining the two dirt tanks and constructing a jack leg fence around the water near Penn's Cabin to control grazing pressure on the meadows as well as attract animals from Krueger pond would serve to enhance wilderness values by limiting utilization levels and distributing use of wild horses. These dirt tanks are pre-existing to FLPMA and therefore would not be new disturbance.

Seep development would occur off of Bad Pass although this is not in the WSA it is adjacent to it. Development of this water source would help with recovery of the area around little Sykes spring. Also, an additional reliable water source that has no riparian values would help with distribution of wild horses thus non-directly enhancing wilderness values.

Development of a short wire drift fence to control livestock trailing and prevent livestock from trespassing onto areas of the PMWHR outside of Bad Pass would not only prevent deterioration of range resources, but also protect wilderness values. Having livestock in wilderness study areas after an area has been closed to cattle for nearly 40 years detracts from the wilderness experience and particular values of the Pryor Mountain WSA. The fence would skirt along the edge of the WSA boundary and be open ended to allow wild horses to have free-roaming behavior. The fence would act as a "wing" catching all livestock as they go through the gate onto the county road by the Tillet Fish Hatchery. This would prevent livestock trespass onto the horse range and WSA's. A fence would have no impairment to wilderness values as the Sykes

ridge road, bad pass road, county road, and boundary fence are adjacent and visually present. Livestock trailing is a permitted and traditional use of Bad Pass and preventing livestock from going into the WSA would enhance wilderness values.

Cottonwood Spring riparian protection would consist of utilizing material on site to develop riparian protection. The water trap acted as a de-facto riparian protection for many years. This development existed prior to the passage of FLPMA and was used for wild horse management, thus it is consistent with Wild Horse and Burro Management on page 42 and 43 of H-8550-1, Interim Management Policy for Lands Under Wilderness Review.



Photo 19 - Cottonwood Spring Horse Trap



Photo 20 - Cottonwood Spring

Hazardous fuels reductions would enhance wilderness values by serving two purposes. It would reduce a dangerous fuel load that could result in catastrophic wild fire permanently changing the vegetative community. Secondly it would serve as a fire break in order to ensure any fire would be limited in size and scope. Adding resiliency to the forests would enhance the wilderness values by mimicking a more natural state for forest ecology, thus preserving the wilderness characteristics.

### **Alternative C – Continuation of Existing Management**

Under this alternative no direct management actions would occur within any of the WSA's except noxious weed treatment. There would be no possibility for impairment to wilderness values from projects such as guzzlers, pothole reconstruction, riparian protection, or hazardous fuels reductions through prescribed fire. However, impairment of wilderness values due to over utilization of forage species and poor ecological conditions from wild horse grazing in high elevation meadows, and low elevation desert areas would occur to a greater extent than in Alternative A or B due to managing more wild horses than the habitat can support in a thriving natural ecological balance as well as concentrated grazing by horses due to limited watering sources. Under this alternative management actions would not be in conformance with the Interim Management Policy for Lands Under Wilderness Review H-8550-1 page 42 and 43 section E which mandates that "wild horse and burro populations must be managed at appropriate management levels as determined by monitoring activities to ensure a thriving natural ecological balance.



## **Cumulative**

Alternative A would not have the potential for impairment of Wilderness Values from wildlife and riparian protection projects, but has a high potential for impairment due to current forest health conditions and in impairment of wilderness due to concentrated areas of wild horse grazing.

Alternative B should result in non-impairment and most likely to enhance wilderness values. Preventing the range from experiencing deterioration along with easily removable guzzler designs and repairing pre-existing FLPMA projects would meet non-impairment criteria for management of land under wilderness review.

Alternative C would continue with impairment from overuse by wild horses. The potential for impairment of Wilderness Values from wildlife and riparian protection projects would not exist. High potential for impairment due to current forest health conditions would continue.

### **3.4.7 Forestry**



**Photos 21 and 22**

#### **3.4.7.1 Affected Environment**

Forest and fuels composition was inventoried by the Bureau of Land Management (Pryor Mountain Fuels Inventory, Erin Riley) in 2001. This inventory chronicled tree densities ranging from 500-8,900 stems/acre with basal areas (BA) ranging from 89.8 (BA) to 362.2(BA). Crown structure and forest composition favors high intensity/high severity wildland fires. Insects have invaded the Pryor Mountain Horse Range leaving extensive areas with dead and dying trees. The insect infestation has subsided to a great extent however the potential for loss of more forested area to new activity is present. The douglas fir and douglas fir/limber pine forested areas on the mid to upper elevation slopes are mature and are becoming decadent, unproductive.



**Photo 23 - Closed Canopy Forest Structure**



**Photo 24 - Insect Affected Mid-Elevation**

### **3.4.7.2 Impacts**

#### **Assumptions for Analysis**

The proposed action would allow the use of prescribed fire for forest health, wildlife and wild horse habitat enhancement. Subsequent site specific environmental analysis would be required before the use of prescribed fire. The analysis also assumes the lifespan of the HMAP is being developed for a 5-10 years, and no major legislation will occur that would affect the on the ground management of the PMWHR. The analysis assumes no major shift in climate outside of average variances would occur during the lifespan of the plan altering vegetation communities.

Much of the Pryor Mountain Horse Range is listed as a Wilderness Study Area (WSA). Under the current interpretations of the Non-Impairment Standards for Wilderness Study Areas, use of mechanized equipment to implement forest management strategies is not permitted. Impact analysis is based on the premise that fire is a natural agent in the ecosystem and prescribed fire is an acceptable tool for vegetation management.

#### **Alternative A – No Action and Alternative C – Continuation of Existing Management**

Both of these alternatives will result in the same affect on forest health. Under these alternatives, no actions would be undertaken and forest health and composition would continue to trend toward more decadence and heavier fuel loadings, until affected by wildland fire. Wildland fire would spread over the forested portions of the Wild Horse Range. Rugged terrain, high fuel densities, and the predicted fire behavior make suppression difficult and wildland fire would likely spill onto adjacent lands. Forest loss could be severe and dry moisture/soil conditions would retard or limit regeneration of burned forested areas.

#### **Alternative B – Proposed Action**

Under this alternative, prescribed fire would be used to manage for forest health and to provide for vegetation diversity, both in composition and structure. The use of prescribed fire would be based on providing the best benefit to natural resources and strategically placed to limit the



spread of wildland fire. Proper placement would reduce the potential for a severe stand replacing event. Strategically placed prescribed fire would allow wildland fire to play a more of a natural role and function in the ecosystem. Historically, naturally occurring wildland fire maintained diversity in the forest, promoted vigor, and improved forest health.

## **Cumulative**

Timber Management for commercial purposes within PMWHR is possible in the future, but not reasonably foreseeable. Direct Timber Management within and adjacent to the PMWHR is not likely to have any cumulative impacts conversely under alternatives A and C timbered areas would continue to degrade due to beetle infestations and overcrowding of stands. The potential cumulative effect of Alternatives A and C would be changes in the species composition and complete stand replacement from a high intensity wild fire event. Post and pole cutting within and adjacent to the PMWHR is not likely to contribute to cumulative impacts. Timber management on USFS outside of PMWHR is ongoing and should have cumulative effect on timber within the PMWHR.

### **3.4.8 Prescribed Fire**



**Photo 25 - RedWaffle Fire 2002**

#### **3.4.8.1 Affected Environment**

Historic wildland fire occurrence has been documented in a preliminary study: *Fire History Study: Pryor Mountain Wild Horse Range, Eastern Montana, Prescott College, Paul Sneed & Mark Winterowd, March 2006*. This study, while not extensive enough to develop a picture of wildland fire history over the entire Pryor Mountains, gives insight into the historic role of fire in the Pryor Mountain Horse Range ecosystem.

This study characterizes the high altitude subalpine fir habitat types as functioning within a normal range of variability exhibiting a low frequency, high severity fire regime. The douglas fir stands indicate a moderately frequent, mixed fire regime. Limber pine stands are characterized as having a frequent, low intensity fire regime. The Mean Fire Intervals (MFI) were determined to be 7 to 17 years as subdivided between pre-1900 and post-1900. Fire scar study (Sneed & Winterowd, 2006, p 58) indicates that most wildland fires in the post-1900 era, occurred before

1957, suggesting that most surface fires after this date were probably quickly and effectively suppressed.”



**Photo 26 - Ladder fuels**

The mid to upper level of Douglas fir/limber pine forested areas have developed a closed canopy, ladder fuels, dead and down material with interspersed bare rocky areas. Fire modeling and historical evidence indicates that wildland fires are of two types: slow spreading ground fire, and high intensity fast, moving crown fires. Recent experience (2002 Red Waffle Fire) demonstrated that existing forest conditions allow fast moving severe fires to occur in similar forested areas under hot dry summer conditions. The loss of habitat and affects to fisheries was substantial during this wildland fire.

In the study: *Fire History Study: Pryor Mountain Wild Horse Range, Eastern Montana, Prescott College, Paul Sneed & Mark Winterowd, March 2006*, 16 recommendations were made for the Pryor Mountain Wild Horse Range. Those recommendations include:

1. Reduce the threat of large crown fires, except in forest types where this is normal (e.g., subalpine high severity fire regimes).
2. Prioritize and strategically target treatment areas.
3. Develop site-specific reference conditions.
4. Implement incremental, multiple conservative interventions.
5. Utilize existing forest structure rather than reconstructed tree positions.
6. Restore forest ecosystem composition.
7. Retain trees of significant size or age (will vary with forest habitat type).
8. Consider demographic processes (retain some 20<sup>th</sup> cent. regeneration pulses).
9. Integrate process and structure (restore fire as a keystone process).
10. Control and avoid using exotic species in restoration.
11. Foster regional heterogeneity at all spatial scales.
12. Protect sensitive communities (e.g., riparian areas).
13. Assess cumulative effects of restoration work.
14. Protect from overgrazing where appropriate (to restore herbaceous understory in forest types with frequent, low severity fire regimes).
15. Establish monitoring and research programs.
16. Implement adaptive management.

### 3.4.8.2 Impacts

#### Assumptions for Analysis

The proposed action would allow the use of prescribed fire for forest health, wildlife and wild horse habitat enhancement. Subsequent site specific environmental analysis would be required before the use of prescribed fire. The analysis also assumes the lifespan of the HMAP is being developed for 5-10 years, and no major legislation will occur that would affect the on the ground management of the PMWHR. The analysis assumes no major shift in climate outside of average variances would occur during the lifespan of the plan altering vegetation communities.

Much of the Pryor Mountain Horse Range is listed as a Wilderness Study Area (WSA). Under the current interpretations of the Non-Impairment Standards for Wilderness Study Areas, use of mechanized equipment to implement forest management strategies is not permitted. Impact analysis assumes that fire is a natural agent in the ecosystem. Prescribed fire is an acceptable tool for vegetation management.

#### Alternative A – No Action and Alternative C –Continuation of Existing Management

Both Alternatives A and C have the same effect on wildland events. Under either alternative, wildland fire would be expected to exhibit a moderate frequency mixed fire regime, with substantial risk of severe fire occurring in the Big Coulee drainage, where insect damage, fuel accumulations, and slope conditions favor stand replacement fire. Wildland fire severity would compromise firefighter, public and wild horse safety, limiting suppression effectiveness. Wildland fire would impact the majority of the mid to upper elevations, significantly reducing forage for wildlife and wild horses for the short term. Favorable precipitation could increase forage availability as grasses and forbs colonize the areas that were deforested by fire. Forest regeneration would be slow influenced by fire intensity and precipitation.



Photos 27 and 28 - First Order Fire Effects RedWaffle 2002

## **Alternative B – Proposed Action**

Prescribed fire would be used to reduce the loss of existing habitat types to wildland fire. Prescribed fire would increase the available forage for wild life and wild horses and increase available suitable big horn sheep habitat.

The use of prescribed fire would include the development of a prescribed fire prescription designed with regard to site characteristics and reproductive potential of the plants species on the site. Prescribed fire would be based on providing the best benefit to natural resources and strategically placed on the landscape to reduce the risk of stand replacement wildland fire and over the entire extent of the Wild Horse Range. Prescribed fire would set the stage for fire to return to a more natural function in the landscape. Returning a more natural historic type of fire to the ecosystem would reduce the loss of forested areas to a high intensity fire. Soil loss is inevitable when any type of fire occurs, however the loss of soil is expected to be significantly less due to prescribed fire than after a severe high intensity wildland fire. Low intensity managed fire would encourage diversity in forest structure and composition and reduce insect infestation. The use of prescribed fire is consistent with the 16 recommendations given in the: “Fire History Study: Pryor Mountain Wild Horse Range, Eastern Montana,” Prescott College, Paul Sneed & Mark Winterowd, March 2006, p. 59, described above.

## **Cumulative**

It is reasonable foreseeable that revision could be made to the Billings BLM Field Office and Custer Forest Resource Management Plans. Depending upon on the decision, various actions could affect fire management within the PMWHR. Based on the impetus that the federal fire management agencies are placing on implementing the Federal Wildland Fire Policy, it is likely that these revisions would include vegetation management to decrease fuel loading, and consequently, decreased fire risk.

### **3.4.9 Wildlife**

#### **3.4.9.1 Affected Environment**

The primary big game species found in the PMWHR are mule deer, Rocky Mountain bighorn sheep, elk, and black bear. Mule deer are the most abundant of these species and most widely distributed. The sagebrush, juniper/ mountain mahogany belt at lower elevations in the southern foothills is considered crucial mule deer winter range. The most recent counts of bighorn sheep estimated populations in the Pryors at 160. Elk do not utilize the area on a regular basis. The elk primarily utilize the national forest lands to the west and north, but have been occasionally observed in the spring and summer on the meadows on the north end of PMWHR. Black bear are abundant in the north-central portions of PMWHR where terrain is rugged and forested.

Mountain lions are also observed on the PMWHR. Montana Fish, Wildlife, and Parks hunting quotas for mountain lions are frequently not achieved due to the rugged terrain that makes pursuit by either foot or horseback very difficult. Mountain lion hunters usually prefer more accessible terrain.

Upland game birds include blue grouse, sage grouse, and ring-necked pheasant. Blue grouse occur in the timbered portions of the PMWHR. Sage grouse may occur in the southern and eastern part of the PMWHR. Pheasants occur in the southern area near cultivated fields. None of these species are considered abundant.

Neotropical migratory bird use is heaviest during spring and summer months. Nesting usually occurs in late May, June, and early July depending on elevation.

The Pryor Mountains support the most diverse bat fauna in Montana. Ten bat species have been documented and potential exists for additional species to be present. (Hendricks, P., C. Currier, and J. Carlson. 2004. Bats of the Billings Field Office in south-central Montana, with Emphasis on the Pryor Mountains. Montana Natural Heritage Program, Helena, MT. 19 pp. +appendices.)

The gray wolf has been reported in the area north of the PMWHR.

### **3.4.9.2 Impacts**

#### **Alternative A – No Action**

Wildlife impacts would be short term disturbance and displacement during horse gather operations. Wildlife habitat would remain the same for lower and upper elevations for species requiring grass and forb forage and cover as ecological condition stabilizes. Cover and forage conditions may improve slightly in mid-elevation areas as vegetation composition and overall health are maintained.

#### **Alternative B – Proposed Action**

Wildlife impacts would be disturbance and short term displacement during horse gather operations. Wildlife habitat conditions would improve for species dependent on grass forage and cover for habitat such as some big game and birds. Habitat conditions for these species would remain static at lower and upper elevations with a slight improvement at mid-elevations. Wildlife species would definitely benefit from riparian habitat improvement by increases in cover, health, and abundance of herbaceous riparian habitats. Improved riparian conditions would benefit bats because they require open water sources for foraging and water. Prescribed fire would improve grass/forb production which would benefit grazing species and species dependent on grass/forb forage and cover. Bighorn sheep would also benefit from increase availability of open travel corridors and open habitat versus timbered habitat. Bighorn sheep, particularly ewes and lambs, prefer open habitat to avoid predators.

#### **Alternative C – Continuation of Existing Management**

Wildlife impacts would be the same as Alternative A. In addition, wildlife habitat conditions at lower and upper elevations would decline due to the decline in ecological condition. Wildlife habitat conditions would remain static at mid-elevations due to unchanged forage and cover conditions.

## **Cumulative**

Deer and bighorn sheep have historically occupied areas within and adjacent to the PMWHR. Studies conducted in 1999 indicate conflict with dietary and spatial overlap between bighorn sheep and wild horses given current distribution and herd size is minimal. There is potential for a proposed bighorn sheep transplant in the reasonably foreseeable future near Red Pryor Mountain. This transplant would augment bighorn sheep already occurring in East Pryor and Crooked Creek areas. Under any Alternative there is potential for potential dietary or spatial overlap of bighorn sheep and wild horses and competition for forage. There is more potential for this cumulative impact under Alternative C due to a higher number of wild horses and a limited amount of forage, especially near key use areas.

Proposed actions would result in minor disturbance or displacement impacts on riparian zones in the project area. Projects are not proposed in streams with a fishery, direct impacts on fish resources from this project are expected to be negligible or nonexistent. The effects of the projects would be and would not extend to downstream waters, therefore there would not be a potential for significant cumulative effects on fishery resources.

Monitoring of wild horse populations and habitat use will continue to ensure that unacceptable adverse affects are not occurring from wild horse use to the bighorn sheep and deer populations.

### **3.4.10 Threatened and Endangered Animal Species**

Timbered areas within the National Forest boundary in the Pryor Mountains are designated as unoccupied Canada lynx habitat. The Pryor Mountains are not within designated or proposed lynx critical habitat. There are no known T&E species or their habitat in the Pryor Mountains. Recently, the peregrine falcon has been delisted from T&E species status.

Several BLM and Montana State Sensitive Species occur in the area. These include the peregrine falcon, possible gray wolf, Yellowstone cutthroat trout in Crooked Creek, and spotted bat, Euderma maculatum, pallid bat, Antrozous pallidus, and Townsend's big-eared bat, Plecotus townsendi. Forest Service sensitive species include long-eared myotis (*Myotisotis*) and Baird's sparrow (*Ammodramus bairdii*)

Resource decisions from this project, in combination with other past, present, and reasonably foreseeable actions to produce cumulative impacts to threatened, endangered, or sensitive wildlife species are not likely to result in any cumulative impacts to Sensitive Species.

### **3.4.11 Special Status Plant Species**

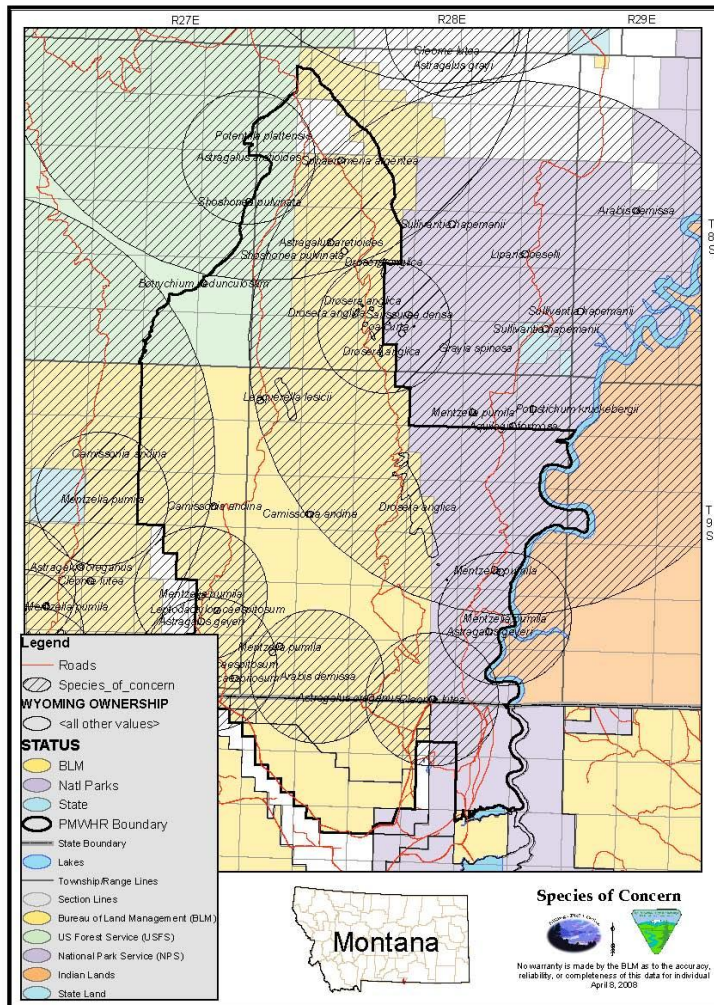
#### **3.4.11.1 Affected Environment**

There are fifteen special status species plants known to occur in the PMWHR (the horse range). All are categorized as Bureau Sensitive species and one as both BLM and F.S. sensitive (Shoshonea). There are no known or suspected federally listed plant species in the horse range.



The majority of the species are found in the Pryor Mountain foothills with only five of the species occurring in the higher elevations of the horse range.

**Map 10**



Information from the Montana Natural Heritage Program identifies potential threat from wild horses for three of the species, sweetwater milkvetch (*Astragalus aretioides*), spiny hopsage (*Grayia spinosa*), and Lesica's bladderpod (*Lesquerella lesicii*). (MNHP, 2006). Lesica (1993) indicated wild horses as a potential threat to Shoshonea (*Shoshonea pulvinata*). Information on Shoshonea from 1999 Trend Report for BLM (Heidel, 2001) indicated there was sufficient data or observations to support or refute impacts occurring from wild horses. No direct evidence of grazing was observed. The study documents the relative stability of the species in a range of settings on two transects in the PMWHR.

### **3.4.11.2 Impacts**

#### **Alternative A – No Action**

Under the existing herd management plan there is no management identified to address conflicts with special status plants. Conflicts that have been identified would continue. Wild horse trails through population sites have been identified for sweetwater milkvetch and Lesica's bladderpod, and winter grazing of spiny hopsage has been observed.

#### **Alternative B – Proposed Action**

Under the proposed action, horse distribution would be improved and ecological condition is expected to improve which will reduce adverse impacts to the special status plants. Improved ecological condition will reduce grazing of the spiny hopsage and distribution changes should reduce the trailing conflicts.

#### **Alternative C – Continuation of Existing Management**

Existing conflicts from trailing and grazing would continue at the existing level or increase under the current situation. Declining ecological conditions would be expected to cause an increase in grazing pressure on the spiny hopsage.

#### **Cumulative**

Implementation of any of the alternatives considered in this Environmental Assessment would not be expected to contribute to significant cumulative effects on sensitive plant species or result in leading to threatened.

Identified sensitive plant species within the project area inhabits sites that and has experienced little activity in the past, whether the activity is logging, mining, grazing, recreation, or prescribed burning or other activities. Bighorn sheep transplant might occur in the reasonably foreseeable future but impacts are generally well distributed minimizing jeopardy to populations.

Other activities affecting sensitive plants include ongoing livestock grazing on several allotments within the cumulative impact analysis area. Additionally, ongoing and planned prescribed fires could impact sensitive plants. These impacts should not be significant due to the types of habitats sensitive plants are located are not affected to a great degree by the project activities. The distribution of these plants is known and mitigating measures are in place as well as management direction for their protection. Ongoing range use by livestock and wild horse use has the most likelihood of cumulative impacts on any sensitive plant resource growing near water sources. Ongoing recreational use such as hunting, wood cutting and camping would not have any cumulative effects on sensitive plants.

### **3.4.12 Riparian**

#### **3.4.12.1 Affected Environment**

There is limited riparian areas within or adjacent to the PMWHR. Crooked Creek is the available to wild horses on BLM lands on the west side of the range above private property holdings. Cottonwood Spring, Little Sykes Spring, and Seep off of Bad Pass are located within Wyoming and are small springs with little riparian potential yet extremely important due to the limited amount of riparian habitat. On the BCNRA the primary riparian areas are Crooked Creek Bay and Layout Creek.

#### **3.4.12.2 Impacts**

##### **Alternative A – No Action**

Under the existing herd management plan there is no specific management identified to address conflicts with riparian areas. Little Sykes Spring would continue to be protected and Crooked Creek would most likely continue to be in properly functioning condition. Cottonwood Spring would continue to be impacted by wild horse use and the Seep off of Bad Pass would continue in the current condition with perhaps some slight recovery due to wild horse numbers managed at 95. Layout Creek and Crooked Creek Bay would continue to be utilized the same as they are now with perhaps fewer animals.

##### **Alternative B – Proposed Action**

Under the proposed action, horse distribution would be improved and ecological condition is expected to improve which will reduce adverse impacts Cottonwood Spring, and reduce pressures on all riparian areas. Riparian areas would be protected from excessive wild horse use at the same time providing water for their use.

##### **Alternative C – Continuation of Existing Management**

Under this alternative riparian areas would be impacted as they are presently as described in the affected environment.

##### **Cumulative**

See discussion of impacts under the Rangeland Health/Vegetation/Soils section.

### **3.4.13 Conformance with Public Land Laws, Regulations, Policy, and Land Use Plans**

In consideration of the past, present, and reasonably foreseeable future actions, Alternative A would be in partial conformance with the 1971 Act within the PMWHR by stabilizing the health of most of the rangelands only in the PMWHR, but not necessarily outside of the PMWHR, and increasing individual wild horse health, but not necessarily the population as a whole. This

would not be conforming to the mandates including land use plans to manage horses within their designated range and territory since wild horses would also likely occur outside the PMWHR.

Alternative B, would be in conformance with public land laws, regulations, policy, and land use plans, as well as increasing the health of rangelands (both in and out of the PMWHR) and individual and population wide wild horse health. While the overall number of wild horses would be reduced from the current populations, the remaining wild horses would be managed at a population level that is appropriate for the productivity of the habitat, for greater genetic exchange while maintaining all mandates and multiple-use relationships.

Alternative C would not be in conformance with public land laws, regulations, policy, and land use plans since wild horses would not be confined to the PMWHR and would likely lead to deteriorating rangeland, both in and out of the PMWHR. Wild horse health would be expected to decline as over grazing of their habitat continues and fewer animals are doing the majority of the breeding (especially stallions).

### **3.5 Mitigation Measures**

Mitigation measures for the proposed action would be incorporated as part of the Pryor Mountain Wild Horse Range *Draft* Herd Management Area Plan.

**Augmentation:** Only mares would be used for augmentation **if needed**. Untitled Pryor horses would be sought after first then only if unavailable; mares from similar genetic stock of other wild horse herds would be utilized.

**Cultural:** All projects would be inventoried for cultural resources by an archaeologist or qualified district archaeological technician. Adverse effects to cultural resources would be avoided, reduced or mitigated.

**Special Status Species:** All projects would be cleared for the presence of special status species to prevent adverse impacts to special status species. This includes assessing the project area for the presence of special status plants in immediate vicinity of proposed projects as well as analyzing changes to trailing activities that projects might cause.

**Water:** Water sources that the agencies have direct control could be used to control wild horse use in specific areas.

**Fences:** All new fences would be flagged for at least one year after construction and monitored for possible wild horse conflicts. All fences around guzzlers would be built with an escape or “finger gate” to allow animals that may get in the enclosures to have a means of escaping. Existing enclosures would be retrofitted with finger gates or removed if deemed no longer necessary for study purposes. Guzzlers developed in WSAs would use buck and rail or jack leg fence.

### 3.6 Monitoring

All monitoring identified under the proposed action would be conducted and recorded in the maintenance log as completed. If within the life of the plan the affected environment changes, revision to the plan may be warranted. The type of foreseeable actions that could dictate a revision would include the following but not necessarily be limited to what is identified or in the order listed:

- Legislative Actions including but not limited to allowing for expansion of the wild horse range, land tenure changes, laws, etc.
- Additional private lands are available for wild horse use
- Changes in the current land use plans
- Full implementation of the Herd Management Area Plan
- Shift in use patterns of wild horses
- Overall change in the natural environment that prohibits implementation of the plan

### 3.7 Opportunities

Although not part of this analysis, the following longer-term opportunities would also help serve management needs for the Pryor Mountain Wild Horse Range. They include: 1) working with the landowner of Krueger pond for opportunities to rehabilitate the area around the pond and potential agreement for piping of water; 2) seeding the Administrative Pasture/Turkey Flat if these locations are released from wilderness study by Congress; 3) consider adding BLM Administrative Pasture and Crooked Creek Natural Area (within 1971 Herd Area) to the range during land use planning process; and 4) pursuing acquisition of other state or private land (long-term lease or purchase).

## 4.0 CONSULTATION AND COORDINATION

### 4.1 Persons, Groups, and Agencies Consulted

#### USA Mailings

Kimber	Allen
Tressa	Allen
Linda	Almeida
Tracy	Amster
Carol	Avril
Kay	Bailey
Leslie Olan	Bailey III
Christine	Baleshta
Catherine	Barcomb
Grant	Barnard
Joe	Baumstarck
Barb	Beck
Kristi	Benson

Commission Preservation of Wild horses

Belinda	Biddle	
Stephanie	Boyles M.S.	HSUS
Vicki	Brown	
Daren	Brown	
Cathy	Bryarly	
Kimberly	Budrow	
Greta	Bunting	
Scott	Burnham	
Bessie	Carnahan	
Joe & Judy	Cassario	
Allen T	Rutberg	Tufts University
Estella	Cervantes	
Robert	Clark	
Susan Hill	Clay	
Doug	Colclasure	
Jane	Collier	
Martin R	Connell	
Darrell	Cook	Superintendent BHCNRA
Maryeileen	Corcoran	
Linda	Crawfis	
Linda	Crawfis	
Melanie & John	Deardon	
Joey	Deeg	
Neda	DeMayo	Return to Freedom
James	Detling	Colorado State University
Tom & Nancy	Dillon	
Steve	Ditullio	
Dave	Dodge	
Bettye &		
Marshall	Dominick	
Vernon	Dooley	Wild Horse Advisory Board
Craig	Downer	
Doug	Dreeszen	Wild Sheep Foundation MT Chapter
George & Judy	Dynnrik	
	Eastern Wildlands Chapter	Montana Wilderness Assoc
Jim	Edwards	
Glen	Engelking	
Kathy	Esper	Kathy Esper Enterprises
Paul	Evenson	
James & Carlene	Everett	
Donna	Ewing	Hooved Animal Humane Soc
Gail	Fox	
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Johanna	Gimmeson	
Jennifer	Glick	
Elaine	Gliko	
Marissa	Godoy	
Diane	Granger	
Kevin	Grasser	
Vickie Ives	Gretchen Patterson	HOA Inc
John	Gross	National Park Service
Pat	Guth	
Mary Ann	Haaf	
Joyce	Halvorsen	
Gary	Hamilton	
Laurie	Hamilton	
Raye	Harris	
Patricia	Harris	
Rhonda	Hart	
Dale	Hartman	Pryor Mustang Breeders
Julia	Heincelman	
Gernot & Ava	Heinrichsdorff	Landscape Studios
Don	Heinze	
Joan	Hellen	
Jean	Hennen	
Carolyn	Heydt	
Susann Vanruff	Howden	
Kevin	Hurley	WY Game & Fish Dept
Carol	Ingram	
Marilyn	Ingwaldson-Poulsen	
Sandra	Jackson	
Joan & David	Jamieson	
Joan	Janus	
Darynn Anna	Jessler	
Kathy	Johnsey	
Gene & Dianne	Johnson	
Jesse & Jessica	Johnston	
Chris	Jordan	
Ginger	Kathrens	Taurus Productions
Karen	Keene Day	
Carol Lou	Kennedy	
Trish	Kerby	
Nancy	Kerson	
Stan	Kinney	

Jay	Kirkpatrick	Science & Conservation Center
Evelyn	Knazek	
Phil	Lane	
Rhonda &		
Natalie	Lange	
Linda	Leblang	
Peter	Lesica	
Natalie	Leu	
Deb	Little	
Frank	Loftus	Humane Society of US
Robin	Lohnes	AHPA
George	Loyning	
	Loyning Ranch	c/o Paul and Jean Loyning
Daniel	Lucas	
Jenna	Malnar	
Suzanne	Marienau	
Irene	Matijick	
Clayton	McCracken	
Bill	McIlvain	
James	McIntosh	
Wally	McLane	
Geri	Mellgren-Kerwin	
Bernadine	Monaco	
Dawn	Myers	
Sally	Newell	
Jane	Nibler	
Pam	Nickoles	
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Vicki	Olson	
Kayhan	Ostovar	Yellowstone Valley Audubon Society
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Mike	Penfold	
Roger	Peters	
Teresa	Pickard	
Carl & Laura	Pivonka	
Carolyn	Plumley-Cory	
Elaine	Polle'	
Lynne	Pomeranz	
Jeff	Powell	RLS International
Michael	Priolo	
Betty	Pritchard	
John	Ranney	
Paul	Ray	
Peggy Ryle	Reed	

Vanessa	Register	
Ann	Rehme	
Marti	Rhea	
Eldon	Rice	
Roberta	Ringstrom	
Jill	Rogers	
Joe	Rohde	
Sharon	Rosema	
Hope	Ryden	
Mike	Sartorie	Sartorie Farms
Betty	Scheidt	
Pat	Schmidt	
Mary	Schoknecht	
Lonnie & Elaine	Schwend	
Tina	Seastrom	
Richard	Sewing	National Mustang Assoc
Florence	Shannon	
Ann	Shesne	
Kathy	Siegrist	
Hedy	Slack	Joseph Van OS Photo Safaris
Lee N	Smith	
Nancy	Smoller	
	Snell and Cockrell	c/o Raymond Snell
Melissa	Sorum	
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Paul	Tanner	Sunflower Ranch
Renee	Taylor	Wild Horse Advisory Board
Bonnie	Templeton	
Rose	Tenbrook	
Fred Miller	The Powell Tribune	
Jerri	Tillett	
Abbie	Tillett	c/o Hip Tillett
Frederick &		
Cathryn	Tilly	
Jerry	Tippetts	
Judy	Tomlinson	
Beverly	Trindle	
Vic	Trutwin	
Allison	Turner	Assateague IS Nat Seashore

Jean	Turnmire	Teachers & Students to Save the Wild Mustangs
D Harvey	Ulrich	
Butch Roelle	USGS Biological Res Div	Fort Collins Science Center
Kate		
Schoenecker	USGS Biological Res Div	Fort Collins Science Center
Ben	VanDyke	
Judith P	Von Ahlefeldt PhD	
Carol	Walker	
Lindy	Wallace	
Golde	Wallingford	
Dick	Walton	
Carl	Wambolt	MSU Animal & Range Science
Barbara	Warner	
Kooiker	Warren	
Rodger	Warwick	
Margaret	Webster	
Tim	Weikert	
Dale	Wells	
Tony	Wengert	
Kathleen	Wheat	
Suzi	White	
Kathleen	White	
Bill	Wichers	WY Game & Fish Dept
Valerie	Williams	
Jake	Wilson	
Jim	Wilson	
Hillary	Wood	Front Range Equine Rescue
Rhonda	Yochum	Equine Images
Leslie	Yost	
Gary	Zakotnik	Wild Horse Advisory Board
Carbon County Commissioners		
USFS		
ISPMB		
The Mayor		
Lovell Wyoming		

**Foreign Mailings**

Ross	Kobitz
Wayne	McCrory
Daniell &	
Deanna	Pfeifer
Margot	Frietag

### **Congressional Mailings**

Senator Max Baucus	511 Hart Senate Office Bldg	Washington	DC
Senator Max Baucus	222 North 32nd St, Ste 100	Billings	MT
Senator Max Baucus	30 W 14th St, Ste 206	Helena	MT
Senator Max Baucus	113 3rd Street North	Great Falls	MT
Senator Max Baucus	1821 S Ave W, Ste 203	Missoula	MT
	Federal Bldg Ste 114 32 East		
Senator Max Baucus	Babcock	Bozeman	MT
	Silver Bow Center 125 W		
Senator Max Baucus	Granite, Ste 100	Butte	MT
Senator Max Baucus	75 Claremont, Ste 1	Kalispell	MT
Senator Jon Tester	187 Dirksen Senate Office Bldg	Washington	DC
Senator Jon Tester	222 North 32nd St, Ste 400	Billings	MT
Senator Jon Tester	208 N Montana Ave, Ste 202A	Helena	MT
Senator Jon Tester	321 First Ave North	Great Falls	MT
Senator Jon Tester	116 W Front Street	Missoula	MT
Senator Jon Tester	211 Haggerty Lane, Ste A	Bozeman	MT
Senator Jon Tester	125 W Granite #200	Butte	MT
Senator Jon Tester	1845 Hwy 93 South, Ste 210	Kalispell	MT
Senator Jon Tester	122 West Towne	Glendive	MT
Congressman Dennis Rehberg	516 Cannon House Office Bldg	Washington	DC
Congressman Dennis Rehberg	1201 Grand Ave, Ste 1	Billings	MT
Congressman Dennis Rehberg	950 North Montana Ave	Helena	MT
Congressman Dennis Rehberg	105 Smelter Ave NE, Ste 16	Great Falls	MT
Congressman Dennis Rehberg	218 East Main, Ste B	Missoula	MT
Governor Brian Schweitzer	PO Box 200801 State Capitol	Helena	MT

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Management)		
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Lynn Hardy (Bureau of Land Management)	Recreation Specialist	Recreation/Wilderness
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## 5.0 APPENDICES

### APPENDIX I

#### **Standards for Rangeland Health for Public Lands Administered by the Bureau of Land Management for Montana and the Dakotas**

##### **Miles City STANDARD #1: Uplands are in proper functioning condition.**

This means that soils are stable and provide for the capture, storage and safe release of water appropriate to soil type, climate and landform. The amount and distribution of ground cover (i.e., litter, live and standing dead vegetation, microbiotic crusts, and rocks/gravel) for identified ecological site(s) or soil plant associations is appropriate for soil stability. Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface sealing and compaction layers below the soil surface is minimal. Ecological processes including hydrologic cycle, nutrient cycle and energy flow are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential and there is a diversity of species characteristic of and appropriate to the site.

• As indicated by:

Physical Environment

- erosional flow patterns; - surface litter; - soil movement by water and wind; - infiltration; - soil crusting and surface sealing; - compaction layer; - rills; - gullies; - cover amount; and - cover distribution.

Biotic Environment

- community diversity; - community structure; - exotic plants; - photosynthesis activity; - plant status; - seed production; - recruitment; and - nutrient cycle.

##### **Miles City STANDARD #2: Riparian areas and wetlands are in proper functioning condition.**

This means that the functioning condition of riparian-wetland areas is a result of the interaction among geology, soil, water, and vegetation. Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid flood plain development; improve flood water retention and ground water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity.

The riparian/wetland vegetation is controlling erosion, stabilizing streambanks, shading water to reduce stream temperature in the summer and provide thermal protection in the winter, stabilizing shorelines, filtering sediment, aiding flood plain development, dissipating energy, delaying floodwater, and increasing recharge of ground water where appropriate to landform. The stream channels and flood plain dissipate the energy of high water flows and transport sediment appropriate for the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity), climate, and landform. Soils support appropriate riparian-wetland vegetation, allowing water movement, filtering sediment, and storing water for later release. Stream channels are not entrenching and water levels maintain appropriate riparian/wetland species.

Riparian Areas are defined as an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

• Proper functioning condition of riparian areas are Indicated by:

Hydrologic

- flood plain inundated in relatively frequent events; - amount of altered streambanks; - sinuosity, width/depth ratio, and gradient are in-balance with the landscape setting (i.e., landform, geology, and

bioclimatic region); - riparian zone width; and - upland watershed not contributing to riparian degradation.

#### Erosion Deposition

- flood plain and channel characteristics, i.e., rocks, coarse and/or woody debris adequate to dissipate energy; - point bars are vegetating; - lateral stream movement is associated with natural sinuosity; - system is vertically stable; - stream is in-balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition); and - bare ground.

#### Vegetation

- reproduction and diverse age structure of vegetation; - diverse composition of vegetation; - species present indicate maintenance of riparian soil moisture characteristics; - streambank vegetation is comprised of those plants or plant communities that have deep binding root masses capable of withstanding high streamflow events; - utilization of trees and shrubs; - healthy riparian plants; and - adequate vegetative cover present to protect banks and dissipate energy during high flows.

### **Miles City STANDARD #3: Water quality meets Montana State standards.**

This means that surface and ground water on public lands fully support designated beneficial uses described in the Montana Water Quality Standards.

- As indicated by:

- dissolved oxygen concentration; - pH; - turbidity; - temperature; - fecal coliform; - sediment; - color; - toxins; and - others: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.

### **Miles City STANDARD #4: Air quality meets Montana State standards.**

This means that air quality on public lands helps meet the goals set out in the State of Montana Air Quality Control Implementation Plan. Efforts will be made to limit unnecessary emissions from existing and new point or non-point sources.

Bureau of Land Management management actions or use authorizations do not contribute to air pollution that violates the quantitative or narrative Montana Air Quality Standards or contributes to deterioration of air quality in selected class areas.

- As indicated by:

Section 176(c) Clean Air Act which states that activities of all Federal agencies must conform to the intent of the appropriate State Air Quality Implementation Plan and not:

- cause or contribute to any violations of ambient air quality standards; - increase the frequency of any existing violations; and - impede the State's progress in meeting their air quality goals.

### **Miles City STANDARD #5: Habitats are provided for healthy, productive, and diverse native plant and animal populations and communities. Habitats are improved or maintained for special status species (federally threatened, endangered, candidate or Montana species of special concern).**

This means that native plant communities will be maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant life forms.

Where native communities exist, the conversion to exotic communities after disturbance will be minimized. Management for native vegetation is a management priority. Ecological processes including hydrologic cycle and energy flow are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential and there is a diversity of species characteristic of and appropriate to the site. The environment contains all the necessary components to support viable populations of a sensitive/threatened and endangered species in a given area relative to site potential. Viable populations are wildlife or plant populations that contain an adequate number of reproductive individuals distributed on the landscape to ensure the long-term existence of the species.

- As indicated by:

- plants and animals are diverse, vigorous and reproducing satisfactorily, noxious weeds are absent or insignificant in the overall plant community; - an effective weed management program is in place; - spatial distribution of species is suitable to ensure reproductive capability and recovery; - a variety of age classes are present (at least two age classes); - connectivity of habitat or presence of corridors prevents habitat fragmentation - diversity of species (including plants, animals, insects and microbes) are represented; and - plant communities in a variety of successional stages are represented across the landscape.

## APPENDIX II

### POPULATION MODEL

Population modeling was completed for the Draft HMAP in order to demonstrate a likely outcome of the management scenario. The herd was based upon the demographics from the PMWHR Evaluation dated February 2008 except for the 2008 foal crop as is estimated since foaling season has not concluded. One hundred trials were run, simulating population growth and herd demographics to help simulate the projected herd structure for the life of the plan based upon the population management objectives of the **Draft HMAP**. The computer program used simulates the population dynamics of wild horses. It was written by Dr. Stephen H. Jenkins, Department of Biology, University of Nevada, Reno, under a contract from the National Wild Horse and Burro Program of the Bureau of Land Management and is designed for use in comparing various management strategies for wild horses.

#### Interpretation of the Model

The estimated population of 170 wild horses is for the entire wild horse population within the Pryor Mountains regardless if the animals are residing within or outside the range. Year one is the baseline starting point for the model, and reflects wild horse numbers immediately after a gather action with 22 month fertility control vaccine applied to all mares except 5-9 year olds and foals as well as assumes **Draft HMAP** population management objectives were to be implemented. In this population modeling, year one would be 2008. Year two would be exactly one year in time from the original action, and so forth for years three, four, and five. In this model, year ten is 2018. This is reflected in the Population Size Modeling Table by "Population sizes in 10 years" and in the Growth Rate Modeling Table by "Average growth rate over 10 years". The Full Modeling Summaries contain tables and graphs directly from the modeling program.

#### Population Modeling Criteria

The following summarizes the population modeling criteria:

- Starting Year: 2008
- Initial gather year: 2008
- Gather interval: regular interval of four years
- Sex ratio at birth: 50% female-50% male
- Percent of the population that can be gathered: 100%
- Foals are not included in the AML
- Simulations were run for 10 years with 100 trials each
- Fertility control is estimated to be 94% effective in year 1 and 82% effective in year 2 68% effective in year three with 5-9 year old mares and filly foals not being treated.

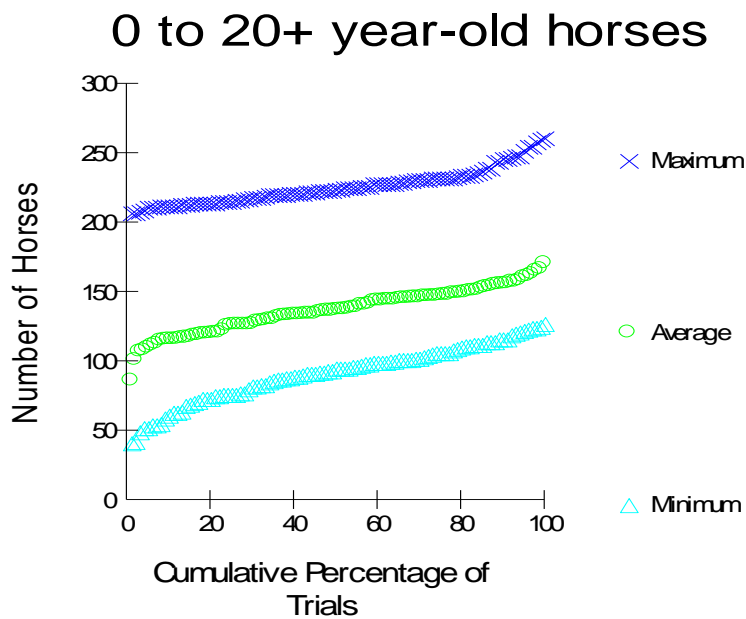
## Population Modeling tables and graph

This table compares the projected population size and growth rate for the Draft Herd Management Area Plan during a ten-year simulation to represent the life of the HMAP. The population averages are across all 100 trials.

The average median population is modeled to be 119 wild horses

	Population Sizes in 10 Years*		
	Minimum	Average	Maximum
Lowest Trial	18	74	207
10th Percentile	38	102	210
25th Percentile	52	109	216
Median Trial	68	119	224
75th Percentile	83	134	240
90th Percentile	98	144	259
Highest Trial	117	181	368

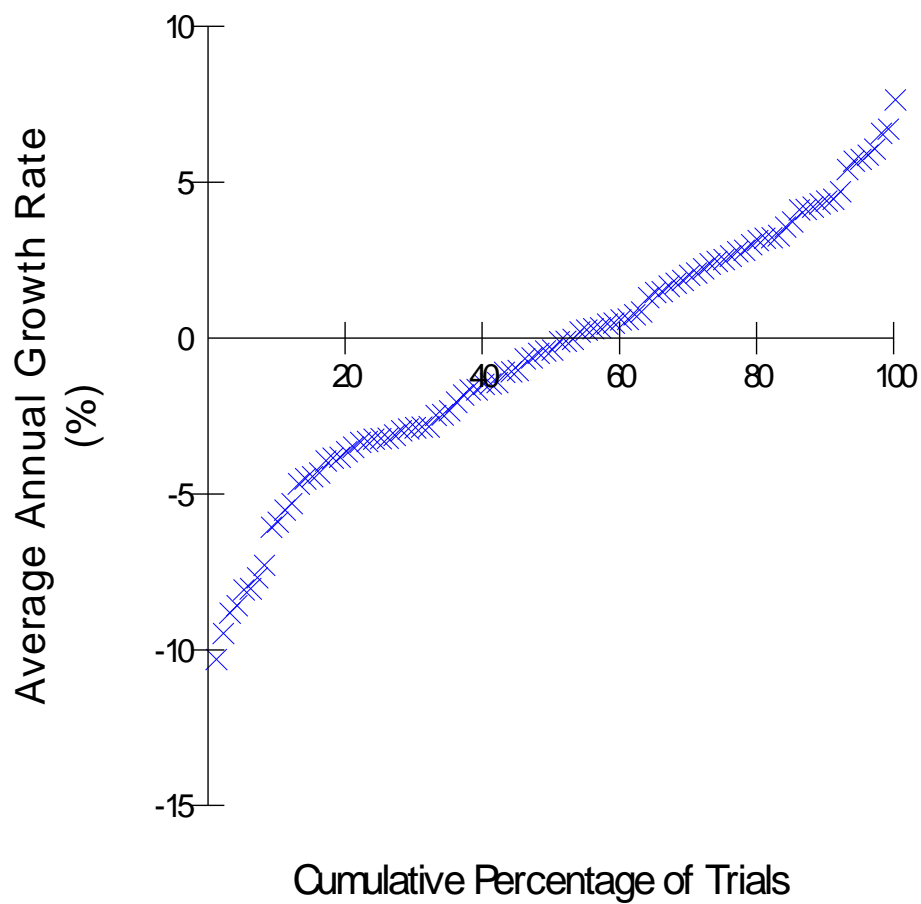
\* 0 to 20+ year-old horses



The average median growth rate is modeled to be -0.2 or no population growth

Average Growth Rate in 10 Years

Lowest Trial	-10.3
10th Percentile	-5.6
25th Percentile	-3.2
Median Trial	-0.2
75th Percentile	2.6
90th Percentile	4.5
Highest Trial	7.7



## APPENDIX III

### GLOSSARY

*Act* means the Wild and Free-Roaming Horse and Burro Act of December 15, 1971, as amended (16 U.S.C. 1331-1340), commonly referred to as the Wild Free-Roaming Horse and Burro Act

*Activity plan* means a plan for managing a resource use or value to achieve specific objectives. For example, a herd management area management plan (HMAP) is an activity plan for managing wild horses use to improve or maintain rangeland conditions, and wild horse health.

*Actual use* means where, how many, what kind of wild horses, and how long grazing on the PMWHR, or on a portion or pasture of the PMWHR.

*Animal unit month (AUM)* means the amount of forage necessary for the sustenance of one cow or its equivalent for a period of 1 month (one horse, five sheep). It is recognized that there are differing agency definitions for AUMs and associated animal conversion factors. For purposes of this evaluation, an AUM equates to one adult horse for a period of 1 month.

*Appropriate Management Level* means the maximum number of wild horses or burros excluding the current years foal crop that can be maintained within an area without causing deterioration of rangeland resources.

*Augment* means to supplement the current population.

*Authorized Officer* means any employee of the Bureau of Land Management to whom has been delegated the authority to perform the duties described therein.

*Authorized officer* means any person authorized by the Secretary to administer regulations in this part.

*Carrying Capacity* means the maximum stocking rate possible without inducing damage to vegetation or related resources. It may vary from year to year on the same area due to fluctuating forage production.

*Commercial exploitation* means using a wild horse or burro because of its characteristics of wildness for direct or indirect financial gain. Characteristics of wildness include the rebellious and feisty nature of such animals and their defiance of man as exhibited in their undomesticated and untamed state.

*Crop Yield* means the effective precipitation that is utilized by forage plants in order to produce biomass.

*District* means the specific area of public lands administered by a Field Manager.



*Executive Order* means a directive given to employee's of the executive branch in order to fulfill the wishes of the President or their authorized delegated representative

*Genetic Drift* means the process of change in allele frequencies that occurs entirely from chance (or **allelic drift**) is the evolutionary process of change in the allele frequencies (or gene frequencies) of a population from one generation to the next due to the phenomena of probability in which purely chance events determine which alleles (variants of a gene) within a reproductive population will be carried forward while others disappear.

*Genetic Fitness* means the capability of an individual of certain genotype to reproduce, and usually is equal to the proportion of the individual's genes in all the genes of the next generation. If differences in individual genotypes affect fitness, then the frequencies of the genotypes will change over generations; the genotypes with higher fitness become more common.

*Genetic Diversity* means level of diversity that refers to the total number of genetic characteristics in the genetic makeup of a species.

*Herd Area* means the geographic area identified as having been used by a herd as its habitat in December 1971 at the passage of the Wild Free Roaming Horse and Burro Act (PL 92-195) as amended.

*Herd Management Area* means an area established for the maintenance of wild horse and burro herds.

*Herd Area Management Plan (HMAP)*" means a documented program developed as an activity plan, that focuses on, and contains the necessary instructions for the management of wild horses on specified public lands to meet, wild horse health, resource condition, sustained yield, multiple use, economic and other objectives.

*Ho*, means heterozygosity

*He* means expected heterozygosity

*Heterozygosity* refers to the state of being a heterozygote. Heterozygosity can also refer to the fraction of loci within an individual that are heterozygous. In population genetics, it is commonly extended to refer to the population as a whole, i.e. the fraction of individuals in a population that are heterozygous for a particular locus (genetic marker).

*Interested public* means an individual, group or organization that has submitted a written request to the authorized officer to be provided an opportunity to be involved in the decision making process for the management of wild horses or other public lands or has submitted written comments to the authorized officer regarding the management of public land on a specific area.

*Key Management Area (KMA)*: a relatively small portion of a range selected because of its location, use or grazing value as a monitoring point for grazing. It is assumed that key areas, if properly selected, will reflect the overall acceptability of current grazing management over the range.

*Key Species:* forage species whose use serves as an indicator to the degree of use of associated species. Those species which must, because of their importance, be considered in the management program.

*Land use plan* means a resource management plan, developed under the provisions of 43 CFR part 1600, 36 CFR part 219, or management framework plan. These plans are developed through public participation in accordance with the provisions of from the Federal Land Policy and Management Act of 1976 public land laws, rules, regulations, and policies, and establish management direction for resource uses of public lands.

*Monitoring* means the periodic observation and orderly collection of data to evaluate:

- (1) Effects of management actions; and
- (2) Effectiveness of actions in meeting management objectives.

*Minimum Viable Population* means the lower bound on the population of a species, such that it can survive in the wild. This term is used in the fields of biology, ecology and conservation biology. More specifically MVP is the smallest possible size at which a biological population can exist without facing extinction from natural disasters or demographic, environmental, or genetic stochasticity.

*Ne* means effective breeding size or the number of individuals within a population that are making genetic contributions to the next generation.

*Precipitation Index* the amount of precipitation that is proportional to the long term average.

*Phenotype* The observable physical or biochemical characteristics of an organism, as determined by both genetic makeup and environmental influences. The expression of a specific trait such as stature or blood type and based on genetic and environmental influences.

*Pryor Mountain Wild Horse Range (PMWHR).* The combination of agency and private rangelands authorized for use by wild horses. Not to be confused with *Wild Horse Range* (see definition below) which is a special designation which only the BLM portion of the PMWHR has this status.

*Public lands* means any land or land interest owned by the federal government within the 50 states, not including offshore federal lands or lands held in trust for Native American groups

*Public lands for BLM* means any land and interest in land outside of Alaska owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management, except lands held for the benefit of American Indians.

*Range improvement* means an authorized physical modification or treatment which is designed to improve production of forage; change vegetation composition; control patterns of use; provide water; stabilize soil and water conditions; restore, protect and improve the condition of rangeland ecosystems to benefit livestock, wild horses and burros, and fish and wildlife. The term

includes, but is not limited to, structures, treatment projects, and use of mechanical devices or modifications achieved through mechanical means.

*Rangeland studies* means any study methods accepted by the authorized officer for collecting data on actual use, utilization, climatic conditions, other special events, and trend to determine if management objectives are being met.

*Range Readiness* means the timing in a forage plants growth cycle when it is “ready” for grazing use without causing deleterious effects.

*Secretary* means the Secretary of the Interior, Secretary of Agriculture or his authorized officer.

*Service area* means the area that can be properly grazed by watering at a certain water source.

*State Director* means the State Director, Bureau of Land Management, or his or her authorized representative.

*Territory* means the USFS geographic area identified as having been used by a herd as its habitat in December 1971 at the passage of the Wild Free Roaming Horse and Burro Act (PL 92-195) as amended.

*Trend* means the direction of change over time, either toward or away from desired management objectives.

*Utilization* means the percentage of forage that has been consumed by livestock, wild horses and burros, wildlife and insects during a specified period. The term is also used to refer to the pattern of such use.

*Use* means the current use, including wild horse grazing.

*Wild Horse Range* means an area of land designated from a herd management area to be managed principally but not necessarily exclusively, for wild horse or burro herds

*Yield Index* The amount of forage that is actually produced in any given year.

## APPENDIX IV

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## APPENDIX V

### Special Status Plants known to occur in the PMWHR

Common Name	Scientific Name	Status	Habitat
Daggett Rockcress	<i>Arabis demissa</i>	BS	Canyon bottoms and outwash plains with dry, stony soils. Juniper woodland to limber pine woodlands and sagebrush steppe.
Sweetwater Milkvetch	<i>Astragalus aretioides</i>	BS	Exposed ridges and slopes in thin soil in foothills and montane zone and in opening of Douglas fir.
Geyer's milkvetch	<i>Astragalus geyeri</i>	BS	Loose sandy soils on alluvial plains and terraces.
Wind River milkvetch	<i>Astragalus oreganus</i>	BS	Sandy soil in the Chugwater formation.
Obscure evening-primrose	<i>Camissonia andina</i>	BS	Exposed sandy soil of dry prairie slopes, flats and depressions, moist swales on south-facing hillsides and in sagebrush.
Small camissonia	<i>Camissonia parvula</i>	BS	Sandy soils in ecotones between sagebrush steppe and juniper woodland.
Yellow bee plant	<i>Cleome lutea</i>	BS	Open, often sandy soil of sagebrush steppe in the valleys.
Smooth buckwheat	<i>Eriogonum salsuginosum</i>	BS	On bentonite in dry, open slopes of breaklands.
Spiny hopsage	<i>Grayia spinosa</i>	BS	Dry shrublands in valleys and foothills on sandy-textured alkaline soils.
Leptodactylon	<i>Leptodactylon caespitosum</i>	BS	Foothills on north- or east-facing slopes in dry, open sandy breaks on Chugwater sandstone.
Lesica's bladderpod	<i>Lesquerella lesicii</i>	BS	Woodlands with a sparse overstory of Ricky Mountain juniper and mountain mahogany and scattered Douglas fir or bluebunch wheatgrass-cushion plant fellfields.
Dwarf mentzelia	<i>Mentzelia pumila</i>	BS	Open, usually sandy soil in desert shrubland and woodlands in the valley and foothill zones.
Short-leaved bluegrass	<i>Poa curta</i>	BS	Sparsely vegetated soil of Douglas fir forest floor in the montane zone.
Platte cinquefoil	<i>Potentilla plattensis</i>	BS	Grasslands and sagebrush steppe in the valley and montane zones.
Shoshonea	<i>Shoshonea pulvinata</i>	BS	Open, exposed limestone outcrops, ridgetops, and canyon rims, in thin rocky soils.
		BS=Bureau Sensitive	

## Monitoring Log

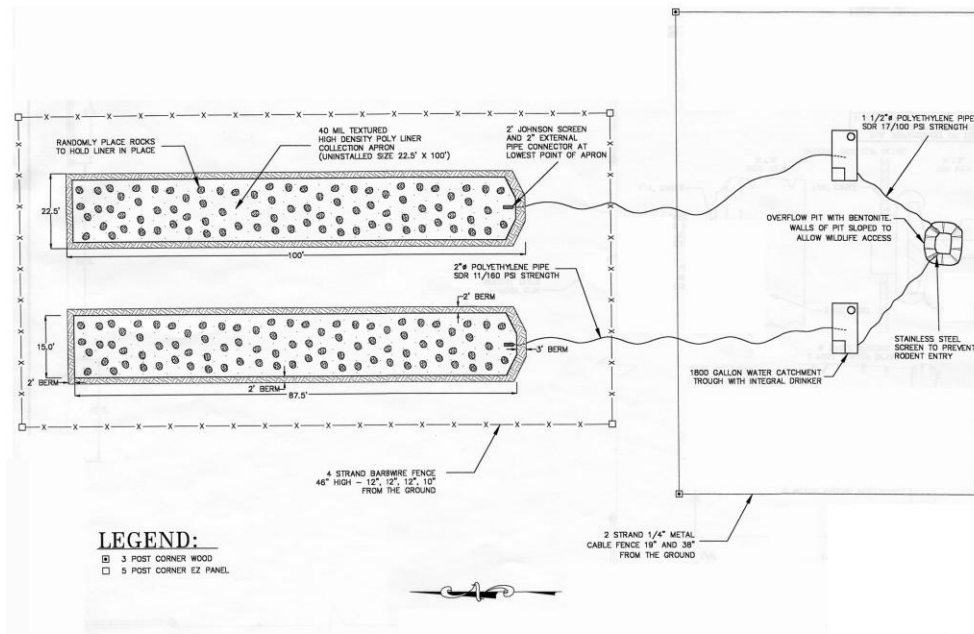
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<b>Project Implementation Log</b>			
<b>Project</b>	<b>Date</b>	<b>Location</b>	<b>Maintenance</b>

## APPENDIX VII

### Guzzler Design Schematic

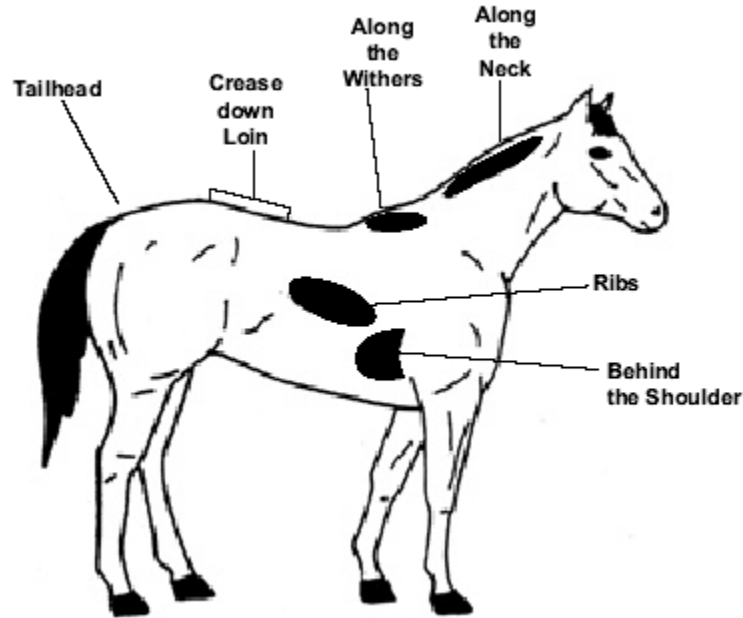
This schematic shows two guzzlers side by side. The guzzlers proposed would not have the Storage/drinker tank arranged like the schematic but rather the tanks would be closer to the apron without the overflow pond.



## APPENDIX VIII

### Henneke Body Condition Scoring System

#### Six Body Points to Check



#### HENNEKE SCORING REPORT

Note: scores can be measured to 1/4 point accuracy, such as 5.25. This allows for uneven fat deposit on some horses' bodies, so score each element separately (neck, loin, etc), add the scores and divide by 6, then round to the nearest quarter point.

Condition	Neck	Withers	Loin	Tailhead	Ribs	Shoulder
1 Poor	Bone structure easily noticeable	Bone structure easily noticeable	Spinous processes project prominently	Tailhead (pinbones) and hook bones projecting prominently	Ribs projecting prominently	Bone structure easily noticeable
		Animal extremely emaciated; no fatty tissue				
2 Very Thin	Faintly discernible	Faintly discernible	Slight fat covering overbase of spinous processes. Transverse processes of lumbar vertebrae feel rounded. Spinous processes are prominent.	Tailhead prominent	Ribs prominent	Faintly discernible
3 Thin	Neck accentuated	Withers accentuated	Fat buildup halfway on spinous processes	Tailhead prominent but individual vertebrae cannot be	Slight fat cover over ribs. Ribs easily	Shoulder accentuated.



			but easily discernible. Transverse processes cannot be felt.	visually identified. Hook bones appear rounded, but are still easily discernible. Pin bones not distinguishable.	discernible.	
4 Moderately Thin	Neck not obviously thin	Withers not obviously thin	Negative crease along back	Prominence depends on conformation; fat can be felt. Hook bones not discernible	Faint outline discernible	Shoulder not obviously thin
5 Moderate	Neck blends smoothly into body	Withers rounded over spinous processes	Back level	Fat around tailhead beginning to feel spongy	Ribs cannot be visually distinguished but can be easily felt	Shoulder blends smoothly into body
6 Moderately Fleshy	Fat beginning to be deposited	Fat beginning to be deposited	May have slight positive crease down back	Fat around tailhead feels soft	Fat over ribs feels spongy	Fat beginning to be deposited
7 Fleshy	Fat deposited along neck	Fat deposited along withers	May have positive crease down back	Fat around tailhead is soft	Individual ribs can be felt, but noticeable filling between ribs with fat	Fat deposited behind shoulder
8 Fat	Noticeable thickening of neck	Area along withers filled with fat	Positive crease down back	Tailhead fat very soft	Difficult to feel ribs	Area behind shoulder filled in flush with body
		Fat deposited along inner buttocks				
9 Extremely Fat	Bulging fat	Bulging fat	Obvious positive crease down back	Building fat around tailhead	Patchy fat appearing over ribs	Bulging fat
		Fat along inner buttocks may rub together. Flank filled in flush				